4: Hrdlička E-5 (no date) 1942 RI Soviet Union RI

The Hun swarm came from beyond the lower Don and Volga. In blood they were of Tatar or "Ugrian" derivation. Their language, like that of all the native population east of the Slav Russia, belonged to the Ural-Altaic. Contemporary accounts show them to have been typical Mongoloid nomads. From southern Russia they extended their incursions over most of western Europe. Soon after their defeat in France their dread chief Attila died, the power which they had established in Pannonia and central Europe rapidly crumbled, their confederates, among whom were some of the Germans and even Ostrogoths, broke away, and what remained of the horde, no longer able to hold its ground, retraced its steps eastward and was lost to sight. Exactly what effect this Hun invasion and occupation had on the population of southern Russia and central Europe is difficult to gauge, but it was probably mainly that of destruction or dispersion.

THE KHAZARS

What remained of the population in southern Russia-to-be after the Hun invasion now became gradually infiltrated with a new ethnic unit, the Khazars. The Khazars, according to many indications, were of Caucasian or anterior Asian extraction, and were related to the Georgians and Armenians. There were with them, however, also the so-called "black Khazars," who have not yet been identified. Their history in southeastern Russia extends over a considerable period of time—to the eleventh century. Between 600 and 950 the territory they controlled is said to have spread from the Caspian Sea to the Don and later even into the Crimea. They were relatively civilized people, who built small towns and engaged extensively in sea trade, which earned them the name of the "Phoenicians" of the Caspian and Black Seas. In the earlier part of the seventh century their power was such that they compelled the agricultural Slavs of the Dnieper and even those of the more northern regions to pay tribute. About 740 they accepted Judaism. But during the ninth and tenth centuries they were slowly outnumbered by the Russians, and in the eleventh century they practically disappear from the stage. Remnants of them probably still exist under different name or names in the Caucasus.

TURKISH AND TATAR TRIBES

The Khazar occupation of the regions which now form southeastern Russia was, however, far from uniform, dense, or continuously peaceful. The waves of incursion of the Turkish and the Tatar tribes from farther east followed at greater or shorter intervals, and over approximately the

4: Hrdlicka E-5 (no date) 1942 R1 Soviet Union R1

175 in various parts along these boundaries and became their privileged life-
101 long and hereditary defenders. Owing to their prowess both as horsemen
[763] and fighters, the term "Kazak" in the course of time became surrounded,
even in Russia itself, with a semiromantic and heroic halo, which was not
[144] wholly undeserved. The original Russian Kazaks of the fourteenth to
sixteenth centuries were in the main of Ukrainian derivation; but in the
course of time new contingents were formed progressively farther east,
and these were of mixed Russian and Asiatic composition.

175 A few known details regarding the Ukrainian Kazaks may be of interest.
701 During the fourteenth and fifteenth centuries Russian refugees before the
463 invading Tatars are recorded to have settled on certain islands in the
721 Dnieper River. They were hunters, fishermen, and, when occasion de-
manded, fighters, gradually developing into strong, bold, and resistant
groups, loving the hard frontier life with its liberties and dangers. Similar
groups developed in time all along the limits of the southern steppes,
and became the scourge of the Tatars and Turks, though occasionally a
source of trouble to the Poles and even the Russians. Their military value
was in time recognized, leading to the regulation and extension of the
Kazak system over southern Russia, Caucasus, central Asia, and Siberia,
until the Kazak became the regular forerunner, scout, and protector of
the Russian armies and Russian colonies from the Danube to the Pacific
Ocean. Their faithfulness to the Czar was proverbial, and they were much
used by the government for quelling internal troubles.

Until the first World War there existed about 12 subdivisions of the Kazaks, the best known of which were those of the Don, Orenburg, Ural, and Siberia. Their free institutions, interesting customs, and especially their exploits in the conquest of Siberia and in the Napoleonic invasion made their name famous. In the period following the 1917-1918 revolution the Don Kazaks, the chief unit, remained for a time on the side of the "interventionists," but since then have been strong components of the Soviet people. Their life is faithfully pictured in his "Quiet Flows the Don," by Shelekhov, himself a Kazak by origin and one of the foremost of present Russian writers.

THE WESTERN AND NORTHWESTERN NATIONS

THE POLES

101 The Poles, the old "Lekhi" and "Poliane," are Slavs, derived in pre-
144 historic to early historic times, like the Russians, Czechs, and other peoples, from the common autochthonous Slav nucleus north and east of the Carpathians. They are admixed with the Russians and to some extent

4: Hrdlicka E-5 (no date) 1942 R1 Soviet Union R1

insignificant. They occupy the northernmost limits of the Finnish and Russian territories, the Lapps extending into Scandinavia. The present-day Lapps are much intermixed with the northern Whites. 101 144 [31]

FINNO-UGRIAN PEOPLES OF THE INTERIOR OF EUROPEAN RUSSIA

The Finno-Ugrians are located principally on the middle and upper Volga and the Kama, and represent the remnants of the primitive native populations that once covered much of central and eastern Russia. They have long been in the gradual process of amalgamation with the Russian population. They are known principally as the Mordva, Tcheremis, Voguls, and Votiaks.

EUROPEAN TURCO-TATARS

There are approximately seven million Turco-Tatars in European Russia and the Caucasus. They are divided into the Crimean Tatars, Kazan Tatars, the Bashkirs, the Tchuvash, and the Kirghiz, with many minor units. They still are scattered over a large portion of southeastern European Russia but are more or less admixed and have no racial cohesion. 161 162

PEOPLES OF THE CAUCASUS

The Caucasus has been since ancient times the eddy and refuge of remnants of nations, and there are in its fastnesses many interesting units, some of which it is difficult to classify. The strongest single element of the Caucasian population today, however, is the Slav (approximately 40 percent of the total), which is followed by the Turco-Tatar, Georgian, and Armenian. 101 144 162

THE ARMENIANS AND GEORGIANS

Both the Armenians and the Georgians are ancient White units. Both, though especially the Armenians, have suffered from many invasions, and both are mixed peoples. 101 175 144

The Armenians occupy also the adjacent parts of Turkey and Iran (Persia). They are known to history from at least seven centuries before Christ and are related primarily to the old Tadjik population of Iran, secondarily to the pre-Turkish peoples of anterior Asia. They are in general dark-complexioned people, of medium to moderately above medium stature and predominantly high brachycephaly. They are famed as traders. The part formerly under Russia joined the Soviet Union as one of its constituent republics after the 1917 Revolution. [142] [463]

4: Hrdlicka E-5 (no date) 1942 R\ Soviet Union R|

101 175 147 The Georgians, or Gruzins, are an old and important trans-Caucasian group, related by language as well as by blood to a number of other tribes of the region. They appear in history in the twelfth century B. C. Their earliest name, curiously, was "Iberians," the same as that of the people of pre-Roman Spain, and some connection between the two, though not established, may have been possible. They were among the very earliest [633] of Christians. Their capital, Tbilisi (520,000 inhabitants)—formerly Tiflis—dates from the middle of the first century A. D. At the beginning [721] of the thirteenth century the country was devastated by Genghiz Khan, and this was repeated in the fourtheenth century by the followers of Timur. Toward the end of the eighteenth century it was largely under the domination of Iran and Turkey; in the period 1801 to 1829 it gradually joined Russia, in part voluntarily; and in 1921 it became a Soviet republic.

[162] [141] The Georgians or Gruzins proper constitute approximately 64.5 percent of the population of 3.5 millions. They are a highly brachycephalic people, which on one hand related them to the prevalent type among the Armenians, and on the other hand to the Tadjiks.

SPECIAL UNITS

THE JEWS

101 175 167 The Russian Jews are in the main the descendants of refugees forced out of Germany during the persecution of the race in the middle ages. Some Jews penetrated into Poland and Lithuania as early as the middle of the eleventh century, but by far the larger number came later, particularly under the Polish king, Kasimir the Great, whose wife was of Jewish extraction. From Poland they spread to Lithuania, Courland, and what is now Ukrainia and Bessarabia. Catherine II, particularly, opened to them the door of Russia.

A small branch of the Russian Jews differing in many respects from the [463] remainder are known as the Karaites. They are principally agricultural and are settled in the Crimea, where they speak Tatar, and in western Russia, where they speak Polish.

The total number of Jews in European Russia before the first World [161] War approximated 4,000,000, of which 1,300,000 were in Russian Poland, and 50,000 in the Caucasus. In addition there were about 50,000 in Siberia and central Asia.

[563] Under the tsarist rule the Jewish poor were allowed to reside only in the towns and hamlets of the present Bielorussia and of the western part of Ukrainia, in the so-called "pale of settlement." Jewish children were

CHAPTER III

Engagement and Dismissal of Workers

THE labour code of 1922 contained separate regulations on working conditions for (1) wage-earners (workers and employees), and (2) persons set to work in accordance with the regulations on compulsory labour. Chapters III–X deal in greater detail with the legislation affecting workers and employees. Of that concerning compulsory labour the following may be said here. 466

Duty to work

The authorities have the power to impose compulsory labour on certain categories of citizen for the purpose of combating natural catastrophes or in the event of a shortage of manpower for tasks of special social importance. Exempt from this obligation to work are, in time of peace, those under 18 years of age, men over 45 and women over 40, persons who have temporarily lost the ability to work owing to sickness or accident, the disabled, pregnant women eight weeks before and eight weeks after childbirth, nursing mothers and women with children under the age of 8 (in so far as no other member of the family can assume care of the child). During the Second World War compulsory work was imposed on certain categories previously exempt. Remuneration for the work carried out under these regulations is fixed by special arrangement.

The duty to work mentioned here (*trudovaya povinnost*) should not be confused with either 'corrective labour' (*ispravitelno-trudovye raboti*; (*cf.* p. 176) or the 'labour mobilization' (*trudovaya mobilizatsia*) of the civilian population which was carried out during the Second World War (*cf.* p. 18).

The right to engage paid labour is in Soviet law mainly reserved for 'juridical persons' (*cf.* p. 170), that is to say state and co-operative institutions, 'social organizations' (*e.g.* trade, political, cultural, etc.) Private persons have the right to engage [463]

o: Björk S-4 (no date) 1953 R1 Soviet Union R1

paid labour for their personal service (*e.g.* domestic servants, secretaries or chauffeurs).

A person can become engaged as worker or clerk either through concluding a *labour agreement* with a person, concern, institution or such-like, or by administrative order, as when pupils from trade schools and higher educational institutions are directed to a specific place of work (*cf.* pp. 44–45).

The right of legal persons to engage workers and clerks is further controlled by directives from the authorities and organizations. Thus State concerns and institutions have the right to engage staff in accordance with fixed lists and planned figures for manpower.

In collective agriculture and artisan-co-operatives (*artels*) the work is largely performed by the members; the return for the members' work varies according to the results of the collective farm's, or *artel's* economic activity, and their working conditions are not regulated by the legislation dealing with the working conditions of wage-earners which this book discusses. These organizations are in certain events and to a limited extent able to engage paid labour.

Thus, collective farms have the right to engage those with special qualifications, *e.g.* agronomists, engineers and technicians. Temporary labour may be engaged for urgent work that cannot be completed by the members themselves by the appointed time, and also for building.

The artisans' *artels* have the right to engage paid labour for auxiliary work that does not constitute the chief purpose of the *artel's* activities and for work requiring special training. According to the normal regulations for *artels* the number of wage-earners should not exceed ten per cent of the number of members. In exceptional cases and with the permission of the State supervisory authority, paid labour may even be engaged for an *artel's* main production.

The Labour Contract

A labour contract (*trudovoi dogovor*) can be either a verbal or written agreement by which the one party (employee) receives employment with the other party (the employer) in the character

o: Bjork S-4 (no date) 1953 R1 Soviet Union R1

insurance funds and to see to the payment of the pensions to those pensioners who do not have paid employment.

Entitlement to a pension

As will be explained in more detail later, a certain qualifying period is normally required before a person becomes entitled to a pension. In calculating this qualifying period all, or (in certain cases) a part, of the time the person concerned has had paid employment as a worker or employee is included. In certain cases even military service, partisan activities, time spent on study at certain educational establishments, work as member of a co-operative artisan organization, etc. are counted. Excluded from the qualifying period is any time the person concerned has been under sentence of corrective labour, even though that labour was performed at his normal place of work.

Pensions can be withdrawn or reduced in certain circumstances, for example when a person is taken into a home for the disabled or a lunatic asylum. Pensions are not paid to persons serving a term of imprisonment or who have been ordered into banishment (*ssylka*) or forbidden residence (*vysylka*) (see p. 174). Certain crimes can be punished with loss of entitlement to a pension (see p. 174).

A person who has more than one reason for claiming a pension (for example old age pension and disablement pension, or a long-service pension and personal pension) can himself choose which of the two he shall receive.

Occupational categories

Wage-earners are divided into three categories according to which the size of the pension varies. The *first* category comprises workers and functionaries engaged on work underground and in certain work that is injurious to health; to the *second* category belong workers and functionaries in the 'leading' industries: metallurgy, engineering, electro-technical industry, coal industry, iron ore, oil, chemical and rubber industries, railways and shipping, concerns producing for communications; and to the *third* category all other workers and functionaries.

18: Zirkle N-5 (no date) 1952 R1 Soviet Union R1

One of the major consequences of the forced change from genetics as it is known throughout the world to a local brand called "Michurinism" and of the emergence of the latter's chief advocate, Lysenko, to power is the catastrophic decline in the quality of the personnel engaged in biological and agricultural research. For some time students in the Russian universities had been advised by their professors not to specialize in genetics because the occupation seemed to be too hazardous, and thus the continued emergence of able youngsters, so necessary for the healthful growth of a science, ceased. Some workers who rose to power were charlatans and were interested chiefly in their personal prosperity. Others were scientific innocents and set out to force nature to do their will by Michuristic practices. The overall lack of success in the field is indicated by occasional articles in *Pravda*. The lot of those who rode to affluence and honor with Lysenko was obviously not a happy one. The first one to be exposed seems to have been Comrade Shaumyan, who lasted just fourteen months from the moment of his triumph. V. A. Shaumyan received great applause when he spoke on August 3, 1948, at the gathering of the Lenin Academy which marked the destruction of genetics. His researches had shown that a milch cow gets her teats pulled from 6 to 7 million times in her life and that this is her chief source of exercise. Shaumyan asked, "Can such a vigorous determining factor of action on an udder applied from generation to generation over an expanse of many years remain without result?" He also stated that the purposeful influences of the environment change the qualities characteristic of the breed, that these changes are not temporary and are therefore inherited. He added that "Following this course any animal breeder will undoubtedly attain success." Later a routine investigating committee visited his institute, examined his annual report and published their findings in *Pravda* (October 5, 1949). Among other devastating criticisms they stated, "Comrade Shaumyan's report is fiction from beginning to end. An unhealthy atmosphere has been created here. Bound to one another by family ties and ties of friendship, the institution's staff members have locked themselves up in the shell of their own personal interests."

Many instances are noted in *Pravda* and in *Izvestia* where nature is resisting being transformed according to plan. Bananas even today do not grow in the Moscow region. Winter wheat still is not being grown throughout the entire Soviet wheat belt. The literal acceptance of the Michurin doctrine has led to many absurdities, but some absurdities are corrected after a time. Marxian environmentalism has had to yield at least at some points, as is shown by the misfortune of Comrade Greben.

The second follower of Lysenko to be exposed was Academician L. K. Greben, who spoke to great applause at the session which outlawed genetics. He seems to have been sincere but not very bright. To quote a single sentence from his speech, "The preparation of zootechnicians in the universities on the basis of formal genetic principles brings confusion to the minds of young specialists to this very day, and hinders us from including properly in general practice the raising of the productivity of pedigreed animal breeding." (*Pravda*, August 7, 1948.) An Associated Press dispatch from Moscow (August 27, 1951) is worth quoting, as it shows what happened to Greben.

PIGS WEARING BOOTIES EARN SCORN OF RED PRESS

MOSCOW (AP) A couple of weeks ago L. K. Greben, a Soviet scientist, was criticized by *Izvestia* for trying to improve the breed of hogs by putting sandals on their feet. Today Greben admitted to *Izvestia* that he had indeed made some grave errors.

THE SOCIAL TRANSFORMATION OF SOVIET JEWRY

While traditional national and religious ideas still survive among Soviet Jews, the Soviet régime has succeeded in changing their economic structure most radically. The inclusion of the Jews in socialist reconstruction work meant not only the encouragement of class struggle within the Jewish people, but the destruction of the economic foundations on which Russian Jewry was built. The work of the Soviet régime, however, was not a purely negative one since the Jews of Russia were also given new functions in the economic life of their country.

It is true to say that the Soviet régime has changed the Jews even more thoroughly than any other people of the U.S.S.R. In the case of the other peoples the Soviet régime struck at the ruling strata, but the social status of the bulk of these peoples, made up of peasants or cattle-breeders, remained unchanged. With the Jews it was different. As they had been excluded under the Czarist régime from the ordinary economic and social life of the Ukrainian, Byelorussian and Russian peoples, 38·65 per cent of all Russian Jews were forced to be traders and middlemen, 35·43 per cent were artisans, 5·49 per cent had 'unproductive and undetermined professions' and only 3·55 per cent were engaged in agriculture.

The Soviet régime completely destroyed Russian Jewry as it had existed before 1917 and created a new Soviet Jewry, which in 1939 included 30 per cent manual workers, 41 per cent employees and members of liberal professions, 20 per cent artisans, 6 per cent farmers and 3 per cent people of miscellaneous professions.[5] Of the Jewish manual workers of the Soviet Union 28 per cent worked in metallurgy and machine-building industries, whilst only 17·5 per cent were employed in the food industry and 17·2 per cent in the garment industry which are usually looked upon as the more typical 'Jewish industries'.

The new social structure of Soviet Jewry, though an improvement on the conditions in the pre-revolutionary period, is far from reflecting a solution of the Jewish problem. The fact that over two-fifths of all Soviet Jews are either state officials and employees or belong to so-called liberal professions (which in Soviet Russia is a synonym of officialdom), still reflects an unsound situation encouraging anti-semitism.

Those Jews of the Western Ukraine, Western Byelorussia and Bessarabia who survived the war are still subject to the same process of social transformation which their co-religionists in the territories originally belonging to the U.S.S.R. have undergone already. This transformation was not easily achieved, since Jewish traders still flourished in the Soviet Union in the middle of the twenties, during the period of the N.E.P. when capitalism was tolerated within certain limits. At that time over 18 per cent of all private traders of Soviet Russia were Jews.

23: Shabad N-4 (no date) 1951 Rl Soviet Union Rl

dairy products. Woolen and felt goods are also manufactured here. Tyumen' is the western navigation head in the Ob'-Irtysh waterway system. The eastern terminus of the old Perm'-Tyumen' railroad, the city was the principal entry gate of Siberia until the construction of the Trans-Siberian. It has since become an important river-rail transfer point for grain and lumber.

Tobol'sk, once a mighty fur-collecting city and, until 1824, the administrative center of Western Siberia, lies on the Irtysh at the mouth of the Tobol. It has declined since it was by-passed by the construction of the Trans-Siberian Railroad in the south, and it is now important as a supply point for the northern sections of Tyumen' Oblast, and receives the northern taiga products (furs, game, fish, lumber). Tobol'sk has shipyards, woodworking and metalworking, and light industries.

Ishim, at the intersection of the northern branch of the Trans-Siberian and the Ishim River (a left affluent of the Irtysh), is the center of a grain-growing and dairy-farming district.

THE KHANTY-MANSI NATIONAL OKRUG (capital, Khanty-Mansiysk; area, 215,500, population, 110,000) was known until 1940 as the Ostyak-Vogul National Okrug, for the former conventional names of the two chief national groups, the Khanty (Ostyaks) and Mansi (Voguls). It occupies the center of the West Siberian lowland, along the lower Ob' River and its affluents. The taiga covers most of the region, with the exception of the many swampy areas at the headwaters of the streams and along the watersheds.

The Russians, who live along the main streams, engage in agriculture, chiefly the cultivation of wheat and barley, and form the majority of the urban population. The Khanty (Ostyaks), the more important of the two basic national groups, live east of the Ob' and the Irtysh rivers, while the Mansi (Voguls) are established in the western section on the slopes of the Urals. The native population is engaged principally in hunting, fur trapping, fishing, and reindeer raising. The main fisheries are along the Ob' at Surgut, Khanty-Mansiysk, Kondinskoye, and Berezovo, and at Lar'yak, on the Vakh, a tributary of the Ob'. Khanty-Mansiysk and the neighboring village of Samarovo have fish canneries and sawmills. In the western section of the okrug at the headwaters of the Konda River, an affluent of the Irtysh, there is a large game reserve for beaver and sable. On the slopes of the northern Urals, rock crystal, Iceland spar, and platinum are found.

The capital, Khanty-Mansiysk (until 1940, Ostyako-Vogul'sk), lies

31: Sosnovy S-5 (no date) 1954 R1 Soviet Union R1

TABLE 23

SIZE OF APARTMENTS OF SCIENTIFIC WORKERS AND SPECIALISTS IN 1940

362*
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463

Number of Rooms per Apartment per Family*	Scientific Workers		Specialists		Total	Per cent of Total
	Number	Per cent	Number	Per cent		
One	27	54.0	46	66.6	73	61.3
Two	16	32.0	16	23.2	32	26.9
Three	5	10.0	7	10.2	12	10.1
Four	2	4.0	–	–	2	1.7
Total	50	100.0	69	100.0	119	100.0

*Among the respondents, there were no instances of more than one-family occupancy per apartment.

Only thirty-nine families—one-third of the sample—lived in separate, self-contained apartments where kitchen facilities were reserved to their individual use. One-fifth of the group used the kitchen together with at least four other families. This occurred most frequently in reconverted former town houses and in large apartment houses where families had only a single room at their disposition; the communal kitchen was used by as many as forty individuals and sometimes more. Finally, almost one-fourth of all apartments had no kitchens at all; as a rule, these were the most overcrowded ones. The survey also indicated that, in spite of the regulations prohibiting the use of kitchens as dwelling space, infractions were current, even among specialists.[77]

Compared to European or American standards, the housing conditions of these two groups of the Soviet professional intelligentsia in the Soviet Union on the eve of World

77. The average-size apartment for the group as a whole was 1.5 rooms: for the scientific workers, 1.7 rooms; for the specialists, 1.4 rooms. The average-size family for the group as a whole consisted of 3.3 persons: the families of scientific workers, 3.0 individuals, those of the specialists, 3.5.

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TABLE 24

KITCHEN FACILITIES OF SCIENTIFIC WORKERS AND SPECIALISTS IN 1940

Group	Apartments Surveyed										
	Total	Kitchen Facilities									
		None		One-family Use		Two-family Use		Three-family Use		Four or More-family Use	
		No.	%	No.	%	No.	%	No.	%	No.	%
Scientific workers	50	10	20.0	15	30.0	8	16.0	7	14.0	10	20.0
Specialists	69	18	26.0	24	34.8	11	15.0	2	3.0	14	20.3
Total	119	28	23.5	39	33.0	19	15.9	9	7.5	24	20.1

31: Sosnovy S-5 (no date) 1954 R1 Soviet Union R1

War II were woefully inadequate.[78] It is not difficult to imagine the housing conditions of the rest of the urban population for whom dwelling space per capita equaled 4.09 sq. m., that is, less than half the average dwelling space of the group investigated in the above survey.

10. HOUSING CONDITIONS OF THE BUREAUCRACY

Soviet bureaucracy receives particular consideration from the state. The process of its detachment and separation from the bulk of the population, buttressed by unwritten codes of special rights and privileges, developed gradually and imperceptibly became a fact. The ascendent role of the bureaucracy is, as might be expected, reflected in better housing conditions than are enjoyed by the rest of the population, housing conditions which have improved as its position has become consolidated.[79]

By Soviet bureaucracy is meant the upper crust of Soviet society, the leading personnel in the Party and soviets and in the economic, military, professional, and cultural life of

78. The urban housing fund in the United States in 1940 numbered 21,616,000 apartments, broken down as follows:

Number of Rooms	Per cent of Total
1-2	11.2
3-4	32.5
5-6	40.7
7	15.6
Total	100.0

See *Statistical Yearbook 1951*, United Nations, 1952, p. 535. In the above figures the kitchen is counted as a room.

79. "We must take into account the vital, incontrovertible truth... [that] the estimated number of various contingents being settled at the present time requires... apartments of a so-called superior type, measuring 10-11 sq. m. of dwelling space per person and possessing a higher percentage of auxiliary [utility] quarters and modern conveniences." See *Materialy Vserossiiskovo Soveshchaniya...*, *op. cit.*, p. 45.

31: Sosnovy S-5 (no date) 1954 R1 Soviet Union R1

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[463]

A general idea of everyday living conditions is provided by the report of a delegation of the French Mineworkers' Union that visited the Soviet Union in 1936. It is to be remembered that the Soviet miners represent one of the largest segments of the Russian working class. The delegates reported that

> many houses have been built for the workers, but the ones that we saw were small, one-story units consisting of three (rarely four) rooms. A single family does not have the entire house at its disposal, however. An entire family—and frequently two families—occupies a single room. In short, there may be as many as eight or nine people in one room without any furniture except for two or perhaps three cots which are 80 centimeters wide. Once we came upon just such a room; it contained nine persons, two cots and nothing more, not even a chair, it was completely bare. In every house that we visited, there was only *one* stove for four or five families; furthermore, an entire family was living in the kitchen.
>
> But only the lucky ones are living in these houses; the rest of the workers are still living in barracks and shanties of the tsarist era.[7]

It is not without interest to note that similar conditions were noted by authors writing in the first half of the twenties, that is, more than a decade earlier. Thus Ye. O. Kabo in 1925 wrote that "our investigations show an average of three individuals for each bed."[8] S.G. Strumilin made the same findings in his 1923 survey of the living conditions of Moscow workers and employees.[9]

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new houses separate rooms providing 5 sq. m. per person." *Sovetskoye stroitel'stvo* [Soviet Construction], Moscow, No. 5-6, 1931, p. 149.

7. *Sotsialisticheskii vestnik* [The Socialist Courier], Paris, No. 5, 1937, p. 15.

8. Kabo, Ye. O., "Ocherki rabochevo byta" [Sketches of Workers' Life], *Ekonomicheskoye obozreniye,* Moscow, No. 1, 1929, p. 176.

9. "The most widely used item of bedding in the worker's house-

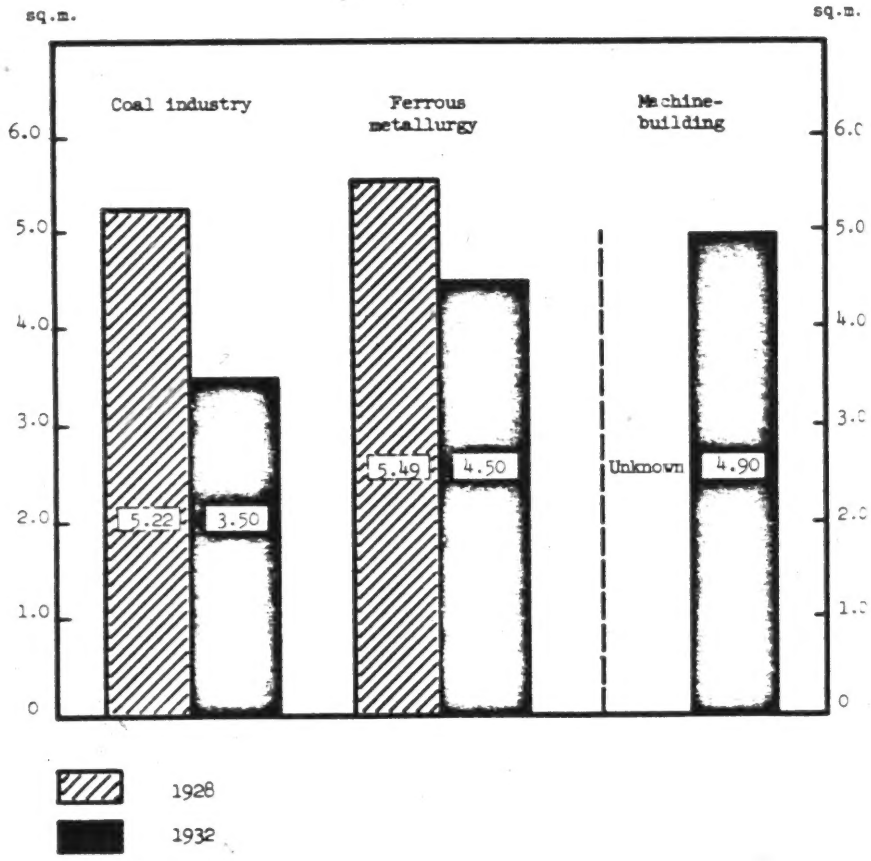
31: Sosnovy S-5 (no date) 1954 R1 Soviet Union R1

APPENDIX II

Chart 8

362*
565
463

DWELLING SPACE PER WORKER IN BASIC INDUSTRIES IN 1928 AND 1932

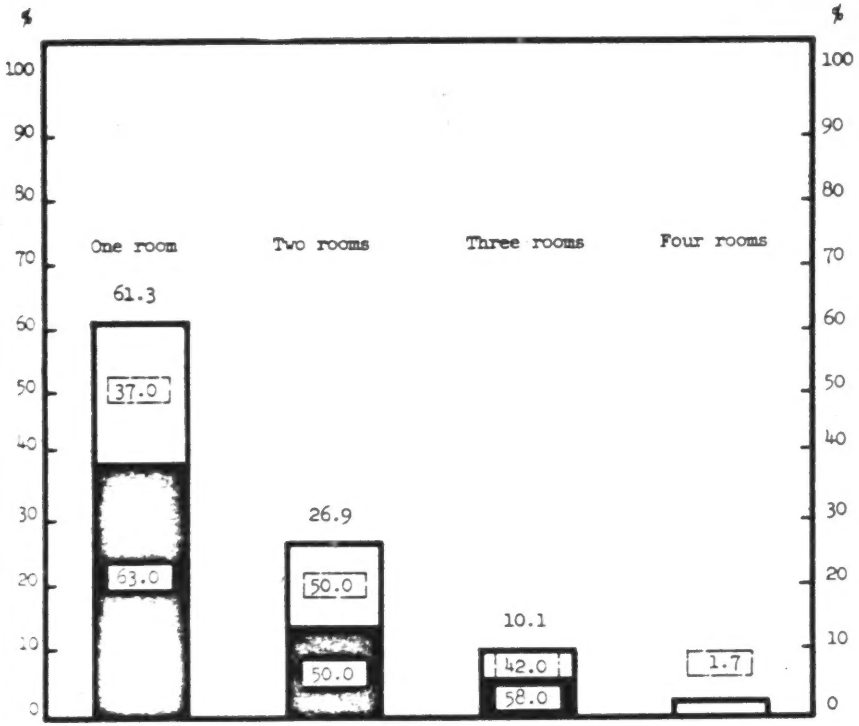


Source : See Table 22

Chart 9

SIZE OF APARTMENTS OF SCIENTIFIC WORKERS AND SPECIALISTS IN 1940

362 *
463 ●



Source : See Table 23

32: Geiger S-4, 5 (1950-51) 1955 R1 Soviet Union R1

609.

TABLE 2. EFFECT OF SOVIET REGIME ON FAMILY FOR PERSONS FROM FAMILIES ON DIFFERENT LEVELS

Occupational Level of Respondent's Family	Effect on Family: More Solidary	Unchanged	Less Solidary	Total	N
	Percentages				
Intelligentsia	63	25	12	100	306
Semi-professional and white collar	58	25	17	100	286
Worker	46	23	31	100	382

124 .594 463

626.

LOGICAL REVIEW

121 Soviet families were likely to be exposed.
511 These were (1) a low standard of living,
661 and (2) the political arrest of someone in the family. Information on the degree of deprivation suffered by the individual in each of these two respects was available.
[124] Respondents were asked to estimate the level of their material living conditions in the last years "in comparison with the majority," and were asked to describe in detail both their own difficulties, if any, and those of the members of their families, with the Soviet control apparatus. It was therefore of special interest to explore both the relationship between material living conditions and reported family solidarity, and that between the "arrest history" of the family and its reported state of solidarity.

594 As shown in Table 3, where socio-economic
511 level of family is controlled, there is an as-
124 sociation between poor material living con-
●463 ditions and reported disruption of family solidarity. Relative living standards were accurately described by respondents, for responses to the check list question on living conditions relative to the majority ("better," "worse," and spontaneously offered write-ins such as "same," or "average") were closely correlated with per capita family income in rubles for the year 1940. Respondents answering "same as those of the majority" or "average," and those who felt their living conditions were above average were combined. On all three social levels, intelligentsia, semi-professional and white collar, and worker, the individuals from relatively deprived families were more likely to report a deterioration in interpersonal solidarity under the Soviet regime than were those from relatively advantaged families.

511 This consistently appearing relationship
124 calls for some interpretation. While it can be said that for many Soviet citizens daily life in the U.S.S.R. was reduced in the prewar era to a grim and grinding struggle against abject poverty, this was by no means true of all. Compare, for example, the following excerpts from the interview materials:

> (Respondent is talking about his sister and brother-in-law.) They lived poorly, and I helped them, too. He only earned 350 rubles. He had a bad specialty. It was not considered good. He worked as an unskilled laborer.

62c.

THE SOVIET UF

511 But on the other hand:

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463 I . . . belonged to the category of the "privileged" and highly paid specialists of the Soviet Union, the number of which was small, and therefore economically I was more securely provided for. Furthermore, my assignments made me travel a great deal, and this enabled me to purchase certain items by blat. (This respondent's nominal monthly income in 1940 was 1800 rubles, with a "take home" pay of 1500 rubles.)

32: Geiger S-4, 5 (1950-51) 1955 R1 Soviet Union R1

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TABLE 3. EFFECT OF SOVIET REGIME ON FAMILY BY MATERIAL LIVING CONDITIONS COMPARED WITH THE MAJORITY FOR DIFFERENT SOCIO-ECONOMIC GROUPS *

Material Living Conditions Relative to the Majority	Less Solidary	Unchanged	More Solidary	Total	N
Intelligentsia — Effect on Family					
			Percentages		
Worse	18	24	58	100	55
Same or Better	10	28	62	100	217
Semi-Professional and White Collar — Effect on Family					
	Less Solidary	Unchanged	More Solidary	Total	N
Worse	23	17	60	100	109
Same or better	14	32	54	100	142
Worker — Effect on Family					
	Less Solidary	Unchanged	More Solidary	Total	N
Worse	39	20	41	100	192
Same or better	26	24	50	100	104

* The relationship shown holds up with a more precise index of the material living conditions of the family, per capita disposable income. This index was obtained from family budgets for the year 1940, which were filled out by about half the sample. See also Table 4, where an additional control is imposed.

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32: Geiger S-4, 5 (1950-51) 1955 R1 Soviet Union R1

Semi-Professional and White Collar—Material Conditions Worse than Majority

	Effect on Family				
	More Solidary	Unchanged	Less Solidary	Total	N
One or more repressions	68	26	6	100	31
No serious repressions	38	5	57	100	21

Semi-Professional and White Collar—Material Conditions Same or Better than Majority

	Effect on Family				
	More Solidary	Unchanged	Less Solidary	Total	N
One or more repressions	67	22	11	100	36
No serious repressions	41	53	6	100	47

(*Continued on next page*)

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32: Geiger S-4, 5 (1950-51) 1955 RI Soviet Union RI

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* As noted in the text, the responses appearing in this table are from only those individuals who had not *themselves* suffered serious repression (defined as exile or imprisonment lasting one year or longer) while living in the U.S.S.R. The presence or absence of repressions in the family thus refers only to the experiences of other members of the family.

** When respondents from repressed families are matched in regard to socio-economic level and material living conditions with respondents from families which were not repressed, the former group is significantly more likely ($p<.05$) to choose the example in which family solidarity increased. Similarly, when respondents reporting material conditions as worse than those of the majority are matched on socio-economic level and family repression with those reporting equivalent or better living conditions, the former group is more likely ($p<.05$) to choose the example in which solidarity decreased. Finally, when workers are matched with intelligentsia on the two types of deprivation, the intelligentsia respondents are more likely to choose the solidary example ($p<.10$) and the workers more likely to choose the disrupted example ($p<.05$). With one exception, ethnic group, age, and sex were characteristics found to be unrelated to the responses about the effect of the regime on the family. The exception is the greater tendency of old females to choose the first (more solidary) response.

[1 TABLE 4, PP. 654 f. --- ANALYST]

32: Geiger S-4, 5 (1950-51) 1955 R1 Soviet Union R1

66 a. 594 661 124 463

TABLE 4—Continued

Worker—Material Conditions Worse than Majority
Effect on Family

	More Solidary	Unchanged	Less Solidary	Total	N
One or more repressions	41	26	33	100	51
No serious repressions	40	24	36	100	42

Worker—Material Conditions Same or Better than Majority
Effect on Family

	More Solidary	Unchanged	Less Solidary	Total	N
One or more repressions	68	16	16	100	19
No serious repressions	50	17	33	100	24

45: Feldmesser-i S-4, 5(1950-51) 1952 RI Soviet Union RI

PROJECT ON THE SOVIET SOCIAL SYSTEM [AF No. 33(038)-12909]
Russian Research Center
Harvard University

October, 1952

THE PERSEVERANCE OF STATUS ADVANTAGES IN SOVIET RUSSIA

by

Robert A. Feldmesser

A Partial Analysis Report Submitted to the Director
Human Resources Research Institute
Air University

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One of the major goals of the Bolshevik Revolution was to create a new ruling class, by rooting out the members of the old upper classes and replacing them with workers and peasants and their children. The regime found that the first part of this goal could be accomplished rather easily, and in the early years of its power made an extensive attack on the economic, political, and educational means by which the members of the upper classes had been able to preserve their status. But it found that the replacement of these people was a more difficult problem. Not only is mobility from manual to nonmanual jobs an uncommon phenomenon, because of differences in values among the classes, but the problem was aggravated in Russia by widespread illiteracy.

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When data from the pencil-and-paper questionnaire are examined for an indication of the solution of this dilemna, it is observed that only 12% of the respondents' fathers who had been workers or peasants before the Revolution had become nonmanual workers (intelligentsia or employees) after, compared to 86% of those fathers who had been members of the upper classes before. This one-to-seven ratio compares with a one-to-three ratio among a sample of Americans whose occupational careers were studied in 1933-34.

Analysis of the adult male population in 1926 shows that, if anything, the actual ratio was even higher than the one-to-seven that it is in the PPQ sample. Faced with a choice between the idealogical goals of proletarian rule, on the one hand, and efficiency and the maintenance of power, on the other, the regime gave primary emphasis to the latter, and grudgingly permitted the old intelligentsia

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and employees to return to their former occupations. At the same time, it established institutions to help workers and peasants move into such occupations, but given the stronger motivation and better preparation of the former upper classes and the limited number of nonmanual occupations available in a society, there was actually little room left for recruits from the lower classes.

[Summary page 2] When the five-year plans began, the situation changed somewhat. The economy was now expanding rapidly, and illiteracy was greatly reduced, so that many more workers and peasants were able to move into nonmanual jobs in the 1930's than had during the 1920's; in the PPQ sample, 30% of the respondents whose fathers had been workers or peasants after the Revolution became nonmanual workers in the 1930's. But the need for nonmanual specialists was so urgent that the regime still could not afford to disqualify the old specialists or their children; indeed, it now removed such disqualifications entirely, enabling the descendants of former nonmanual workers to preserve their fathers' status. Of the respondents whose fathers had been nonmanual workers after the Revolution, 90% were themselves nonmanual workers in the 1930's. Thus, while the new nonmanual group contained, by 1939, a considerable proportion of worker-peasant descendants, it continued to be true that a person of nonmanual descent had a much better chance of attaining nonmanual status than did the person of worker-peasant descent.

47:Rosow S-4,5 (1950-1)1954 R1 Soviet Union R1

EDUCATION OF VARIOUS OCCUPATIONAL GROUPS

Occupational groups	Amount of Education							Totals (N: 100%)
	Adult only	0-4 years	5-7 years	8-9 years	10 years	Some college	Graduated college	
High Managers, High Military	--	(1)	--	(2)	(3)	(2)	(6)	(14)
Sciences, Professions	4%	1%	--%	--%	3%	10%	82%	(131)
Arts, Semi-Professions	3	2	5	6	31	21	32	(160)
White-Collar	5	3	38	15	32	4	3	(192)
Skilled Workers	9	30	32	9	14	4	2	(132)
Semi-skilled Workers	3	46	39	6	4	1	1	(291)
Rank-&-File Workers	5	68	20	5	2	--	--	(100)
Kolkhozniks (collective farm workers)	3	71	21	2	2	*	--	(231)

The above table reveals a high relationship between amount of education and technical skill of the occupation group. The high managers and high military represent a break in the technical skill continuum (although the high military might be classified with the professionals--a departure from customary practice). As the group with the highest managerial responsibility, they could achieve high positions on bases other than technical skill more easily than could other technical specialists. Accordingly, their education could well be lower than other high specialists, as is actually the case.

*Less than 1%

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48: Geiger S-4, 5 (1950-51)1954 R1 Soviet Union R1

II. FAMILY SOLIDARITY AND OCCUPATIONAL STRATA

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In the analysis of such a characteristic of the family as its solidarity, it is important to relate the family to other features of the society of which it is a part, and especially to those extra-familial features of the society which directly affect the welfare of the family members. One such aspect of Soviet society in the 1930's was the existence of a far-reaching system of occupational wage differentiation, with attendant variation in style of life, and, in particular, the access of the various occupational strata to the basic life necessities.[4]

It would therefore perhaps not be surprising to find differences in reported family solidarity as between the various Soviet occupational strata. To explore such differences, each of the refugee respondents in the two groups with which we are dealing was classified according to the occupation of the senior male person in the family in which he lived most of his life under the Soviet system, and was placed in one of three occupational categories: Soviet intelligentsia, rank-and-file white-collar employees, or workers.[5] In the case of the 119 members of Soviet intelligentsia families as well as the 140 members of white collar families, 73 per cent reported united families, and only 27 per cent reported disrupted families. For the total of 185 workers a noteworthy contrast was found. In their case the modal pattern was the disrupted family, 53 per cent choosing to say this about their families, and 47 per cent reporting united families.

A difference of this magnitude between urban occupational strata strongly suggests that family solidarity in Soviet urban society varies directly with socio-economic level, at least as between the manual worker and nonmanual worker families. However, as is well known, in an ex post facto analysis of this type, a generalization on the basis of such a relationship is always contingent on the presence of undetected spurious factors. Given the nature of the sample in the present case, it was considered possible that the representatives of working class families were more likely to choose the example of the disrupted family as the best way to blacken a description of the Soviet system, and thus were expressing their strong anti-regime feelings by distorting matters of fact at the expense of their valuation of working class family

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[4] For documentation and a discussion of the general implications of this fact, see Inkeles, Alex, "Social Stratification and Mobility in the Soviet Union: 1940-1950," American Sociological Review, 15, 4, August 1950, pp. 465-479.

[5] The category "intelligentsia" includes such occupations as engineer, army officer, physician, and scientific workers; "white-collar employee" includes bookkeeper, secondary school teacher, clerk, and administrative workers; "worker" refers to all manual occupations.

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solidarity. But this explanation must be ruled out, for although workers do regularly distort more than the representatives of the other two groups, when the tendency to distort known facts about the Soviet Union throughout the rest of the questionnaire is controlled,[6] pronounced family solidarity response differences between occupational class groups continue to appear.

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[6] The sample was divided into two groups, those distorting one or more known facts, and those not distorting. "Distorters" were defined as persons answering "no" to one or more of the following questions: Does the present day Soviet citizen have more opportunity to visit the theatre and attend concerts than 30 years ago? Was medical care more accessible when you left the Soviet Union than 25 years ago? Was the production of agricultural machinery higher when you left the Soviet Union than 25 years ago? Do you think that during the last 30 years the number of literate people in the USSR has increased significantly?

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most families of the intelligentsia, who got much closer together during moments of hard and severe moral pressure. (Intelligentsia)

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The two aspects of the life situation of the Soviet urban population discussed above are related to family solidarity in the direction shown for all three of the socio-economic strata dealt with here, although, as will be seen, with considerable inter-stratum differences in the degree of relationship in regard to one of them. Before turning to consideration of the differential impact of extra-familial conditions, however, from Table 4 and Table 5 it will be noted that better material living conditions and arrest with punishment are both more likely to characterize the experience of intelligentsia families than that of the families of the other two groups in the socio-economic hierarchy. Similarly, it is the worker families which were least likely to be in relatively better material living conditions and also least likely to have a family member arrested and punished. Thus, to some degree, it is possible to explain the greater proportion of families reported to be united ones in the intelligentsia and white-collar group families by pointing to the greater incidence there of better conditions and arrest with punishment, two factors found to be positively related to reported family solidarity.

TABLE 4

[511]

MATERIAL LIVING CONDITIONS OF FAMILY IN LAST YEARS OF LIFE IN THE SOVIET UNION BY OCCUPATIONAL GROUP LEVEL OF SENIOR MALE IN FAMILY

Occupational Group Level	Material Living Conditions: Better than those of the Majority	Worse than those of the Majority	Total	No. of Cases
Intelligentsia	71%	29%	100%	103
White-Collar Employee	50%	50%	100%	117
Worker	31%	69%	100%	156

TABLE 5

ARREST AND SEVERE PUNISHMENT OF ONE OR MORE FAMILY MEMBERS BY OCCUPATIONAL GROUP LEVEL OF SENIOR MALE IN FAMILY

Occupational Group Level	One or More Reported	None Reported	Total	No. of Cases
Intelligentsia	49%	51%	100%	119
White-Collar Employee	46%	54%	100%	140
Worker	40%	60%	100%	185

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Nevertheless, there are still residual differences left among the socio-economic groups when material living conditions, arrest history, and tendency to distort are controlled,[8] as shown in Table 6. This fact is of considerable interest to students of Soviet social structure, and lends strength to the presumption that there are noticeable sub-cultural differences with respect to the tendency to report family solidarity in the urban population of the Soviet Union. It should be emphasized that this evidence of differential family solidarity among urban occupational strata is independent of the factors shown to be related to reported solidarity, that is, material living conditions, arrest of one or more family members, and tendency to distort known facts about the Soviet Union.

TABLE 6

SOLIDARITY OF OWN FAMILY BY OCCUPATIONAL GROUP LEVEL OF SENIOR MALE IN FAMILY, MATCHED FOR MATERIAL LIVING CONDITIONS OF FAMILY IN LAST YEARS, ARREST AND SEVERE PUNISHMENT OF ONE OR MORE FAMILY MEMBERS, AND TENDENCY TO DISTORT KNOWN FACTS ABOUT THE SOVIET UNION.

	Solidarity of Own Family			
	United	Disrupted	Total	No. of Cases
Occupational Group Level				
Intelligentsia	71%	29%	100%	86
White-Collar Employee	69%	31%	100%	86
Worker	50%	50%	100%	86

The nature of the data at hand made it possible to test further the possibility that intelligentsia and white-collar employee families are more united than worker families. This can be expressed in the form of a proposition of some importance to the sociological study of the family, namely, that the effect on the solidarity structure of the family of a given external circumstance or situation is a function not only of the objective "stimulus" itself, but also depends on the quality of the pre-existing solidarity ties.[9]

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[8] This difference continues to hold up when other attributes, such as age, sex, and nationality, which might act as spurious factors, are controlled.

[9] This is a general conclusion of several studies of the effect of the depression on the solidarity of the family. See for example, Angell, Robert C. The Family Encounters the Depression, New York, 1936; and Komarovsky, Mirra, The Unemployed Man and His Family, New York, 1940.

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If then, it is in fact true that the worker family is one of less solidarity than the upper occupational group families, then it can also be hypothesized that the effect of a given external stimulus will be greater for the worker group than for the more united families of the nonmanual group families. This is to say that the nature of the stimulus or condition itself should be a relatively better predictor of the response which is taken as an index of family solidarity for the worker respondents, while the reverse should be true of the stronger, more united families of the intelligentsia and white-collar respondents. In their case, the nature of the objective stimulus should be less important as a predictor, and the nature of the pre-existing solidarity bonds more important.

This hypothesis was tested by stratifying the relationship between material conditions and family solidarity by the occupational group of the family, shown in Table 7. In the

TABLE 7

SOLIDARITY OF OWN FAMILY AND MATERIAL LIVING CONDITIONS OF FAMILY IN LAST YEARS BY OCCUPATIONAL GROUP LEVEL OF SENIOR MALE IN FAMILY

Intelligentsia

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Material Living Conditions	Solidarity of Own Family: United	Disrupted	Total	No. of Cases
Better	73%	27%	100%	73
Worse	67%	33%	100%	30

White Collar

Material Living Conditions	Solidarity of Own Family: United	Disrupted	Total	No. of Cases
Better	81%	19%	100%	58
Worse	66%	34%	100%	59

Worker

Material Living Conditions	Solidarity of Own Family: United	Disrupted	Total	No. of Cases
Better	69%	31%	100%	48
Worse	40%	60%	100%	108

intelligentsia group, of those reporting better material conditions, 73 per cent reported own family unity, and 27 per cent reported disrupted families. Of those reporting worse

593 conditions, 67 per cent also reported united families, and
571 33 per cent disrupted families. This is a small difference,
565 indicating that material living conditions are to only a small
463 degree related to perception of family solidarity for the intelligentsia. In the case of the rank-and-file white-collar group, the difference is somewhat more appreciable--15 per cent. Finally, for the workers, the factor of material conditions seems to have such an important influence that the difference is one of 29 per cent, and material conditions seem actually to determine a good part of the direction of the modal response about family solidarity. Of the workers reporting better material conditions, 69 per cent report family solidarity; whereas of those reporting worse conditions, only 40 per cent report united families, and a greater part, 60 per cent, report living in disrupted families. Thus, the original relationship between material conditions and reported family solidarity seen in Table 2 becomes an even greater one for the working-class families, and decreases regularly as the occupational level of the head of the family increases.

In view of the importance of this finding, it was felt desirable to check it with the use of a more precise index of the material welfare of the family. This was done with the use of family budget data, estimated by the respondents for the last normal prewar year, 1940. Results showed that both in terms of the gross income of the chief breadwinner of the family, and in terms of per capita disposable income of the family as a whole, the original relation between material conditions and reported solidarity remained high. In the same way, when the occupational group is held constant, the partial relationships were equivalent or smaller for the white-collar group, much smaller for the intelligentsia, and markedly larger for working-class persons.

To return now to the effect of arrest and subsequent punishment of one or more family members on the functioning of the family, it was found that in contrast to the case of material living conditions, arrest did not have a differential impact on families from the three occupational groups. Rather, representatives from all three groups were almost equally likely to report, in effect, that such a serious tragedy brought the family members closer together instead of separating them. Such a finding does not, of course, support the hypothesis that the impact on family solidarity should be greater for the worker family than for the families classed in the other two occupational groups. If one wishes, however, to insist upon the evidence of differential solidarity cited previously, then the corresponding task consists of a further investigation of the nature of such an experience as arrest and conviction of a member of the family, and leads to analysis of the elements of such a "stimulus condition" in comparison with those of the relatively less severe better or worse material living conditions. Such a discussion is beyond the scope of this report, and therefore it can only be said here that in this way it might be possible to specify the theoretical relevance of such aspects of the stim-

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46: Field S-4, 5 (1950-1) 1954 RI Soviet Union RI

TABLE 8

DELEGATES TO THE 19th PARTY CONGRESS[1]
(by education and profession)

Delegates with a higher education		709
of whom there were:		
Engineers	282	
Teachers	98	
Agronomists, zootechnicians and other agricultural specialists	68	
Economists	18	
Physicians	11	
Lawyers	7	
Delegates with an incompleted higher education		84
Delegates with a secondary education		223
Delegates with an incompleted secondary or elementary education		176
Total		1192

It should be stressed again that these clusterings are empirically derived. Despite their rational coherence, they were not arrived at on a priori basis, but represent the actual behavior of our respondents. What they mean is that a person who, for example, goes to the movies frequently is likely also to attend the theatre frequently, but is not necessarily likely to read newspapers frequently, or attend lectures or agitation meetings. 128

There are, of course, relationships between types. For example, a person who is high in exposure to aesthetic media is also very likely to be highly exposed to the mass media. The reverse, however, does not [4] necessarily hold. Many persons are highly exposed to mass media who are not highly exposed to the aesthetic media. Other relationships of this sort exist between these types. However, the study of the interrelationship of these types is a separate task in itself. In this paper we shall restrict ourselves to a discussion of the significance of these types as such.

Variations in Communications Exposure in the Soviet Population

The impression that one gathers quickly from data on Soviet communications behavior is that of a highly stratified society, in which the differences in exposure between social groups is very marked. The major differences are between educational, occupational and residential groups. Virtually without exception, the more highly educated, those of higher occupational status, and those who live in the city are more highly exposed to all media and to all types of media. Sex and age differences are in general surprisingly small. 20 565 184 463● [369]

Occupational differences in level of exposure to each of the four basic types of media are summarized in Table 1. The percentage of persons with frequent exposure drops very sharply for all types as we proceed from left to right along each of the rows, the magnitude of the drop being approximately 80% in two of the four instances.

The most active communications group is composed of persons employed in the arts. They are relatively low in exposure on only one media type, the personalized official media, this being a reflection of the fact that artists work relatively free of the tight institutional controls that force workers in the applied sciences and professions into attendance at agitation sessions and other official meetings. Other than this [5] they are virtually the highest

20 on all other of the three types. As might be expected, they are
184 in a class by themselves in frequency of attendance to movies and
565 the theatre, with 83 percent indicating frequent exposure to the
official aesthetic media.
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In general, we may identify five occupational groups as constituting the most active segment of the Soviet population with respect to communications exposure. They are: arts, applied sciences, professions, semi-professions, and white collar workers. Within this top segment there are a few exceptions. White collar workers, for example, have conspicuously less exposure to personalized official media, with only 22 percent reporting frequent exposure, as compared to 40 percent for semi-professionals, the adjacent group. This difference would seem to be largely accounted for by a difference in frequency of attendance at lectures (40 percent for semi-professionals; 17 percent for white collar workers).

Another break in the overall pattern of communications exposure is the sudden drop in the covert media between the professional and semi-professional group. This difference reflects a sharp change in rates of exposure to all three of the media which make up this type: foreign radio, discussion with friends and rumor. Table 2 shows the drop in exposure (for the professional and semi-professional group) on all three media comprising this type. These differences, it will be seen, are in all instances much more marked than the differences between either of these groups and other adjacent groups. [Table 1 on following page]

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50. Rossi & Bauer-75-4.5 (1950-51)1952 R1 Soviet Union R1

[6] TABLE 1

Level of Exposure By Occupation of Respondent (4)

4. The respondent's occupation is as of 1940. The totals at the bottom of the Table do not add up to the full sample size since those who had no occupation in 1940 (students, housewives, etc.) or who did not answer the question were omitted from consideration.

Managerial and bureaucratic personnel are distributed within these categories according to the type of work performed. Thus, a technically trained factory manager would fall under "applied science," while a physician who occupied an administrative post in the Ministry of Health would be listed as "professional."

	Occupation								
	Arts	Applied Sciences	Prof.	Semi-Prof.	White Collar	Industrial Skilled	Workers Semi-Sk.	Unsk.	Collective Farmers
High Exposure To Official Mass Media	86%	90%	85%	77%	68%	43%	26%	14%	6%
High Exposure Personalized Official Media (1,2,3)	36%	43%	51%	40%	22%	17%	12%	7%	6%
High Exposure Covert Media	58%	58%	57%	38%	35%	26%	18%	13%	13%
High Exposure to Aesthetic Official Media	83%	48%	50%	51%	44%	32%	26%	12%	5%
100% equals	(77)	(111)	(150)	(220)	(345)	(183)	(395)	(133)	(339)

[7] TABLE 2

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Rate of Exposure to Covert Media for Selected Occupational Groups

	Applied Science	Profes-sional	Semi-Prof.	White Collar
Foreign Radio	19% (105)	18% (105)	10% (202)	10% (310)
Discussion with friends	32% (110)	38% (147)	25% (215)	23% (334)
Rumors	38% (110)	38% (147)	23% (211)	17% (332)

The explanation for differentiation in rate of exposure to non-official media at this particular point in the occupational hierarchy is complex, and to some extent can only be speculated on. To a degree, the drop in listening to foreign radios must be considered a function of the fact that semi-professionals cannot afford radios which will pick up foreign broadcasts. It also probably reflects a narrower horizon of interest. Drop in frequency of discussion and access to rumor is again likely to be multi-determined. To some extent, discussion and reliance on rumor is again likely to be multi-determined. To some extent, discussion and reliance on rumor are characteristic of people "in the know" in the Soviet system, people who have friends in or near positions of power or who have access to covert information. Additionally, our oral interviews suggest that this lower exposure to covert sources is a reflection of lower involvement in the system not only in the sense of having lesser access to loci of power, but also in the sense of being less psychologically involved, i.e. less interested in what is going on, less aggressive in operating outside of official channels, having fewer social contacts. If the above suggestions are correct they would indicate that this break in communications behavior reflects a fundamental division point in the Soviet social system, the point which marks an essential discontinuity in the distribution of people who are actively involved [8] in the system as compared to those whose lives are carried on without such involvement. Paradoxically, it implies also that access and interest in covert media of information is correlated highly with involvement in the system.

With respect to all media, rate of frequent exposure drops regularly as we descend the occupational hierarchy until it reaches its nadir in the collective farmer, who is a person almost isolated from the communications network. The bare statistics enumerated in Table 1

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are eloquently supported by our oral interviews with peasants. The collective farmers repeatedly pictured a life of isolation, of concentration on the immediate problems of living with only the most rudimentary of concern for what went on in the world about them.

To the extent that peasants are concerned with what happens they tend to regard the Soviet system as a thing external to themselves in which they have no active part. It is a source of things which may happen to them, but about which they can do nothing positive.

It is interesting to note a slight indication of a relative increase in importance in covert media in the communications behavior of both the unskilled worker and the collective farmer. The statistics presented here are not by themselves a sufficient basis for arriving at this conclusion, even though the peasants do cite covert sources most frequently - 13 percent, as compared to 6, 6, and 5 percent for the other types of media. Our oral interviews, however, again support this picture, and the indications are that while the peasant, and to a lesser extent the unskilled worker, have a very low rate of exposure [9] to any source of information, they are relatively more dependent on rumor and discussion than are the members of other groups. What little information they get seems to come by way of mouth.

Occupational differences in communications behavior may be summarized in these terms: as one descends the occupational hierarchy communications exposure drops sharply. People in the arts, the applied sciences, professional, semi-professional and white-collar categories are, in general, much more engaged in the communications network than are persons in the lower occupational categories. Within this upper group, however, there seems to be one significant difference. The semi-professionals and white-collar workers are appreciably less exposed to covert media, and this may mark a crucial point in the extent to which individuals may be said to be engaged in the Soviet system as such. At the lower end of the scale the unskilled worker, and particularly the collective farmer are markedly isolated from the main stream of communication. To some extent covert media seem to regain their relative importance at this lower level, filling the vacuum created by lack of exposure to the formal official media.

Parenthetically, it should be remarked that some place on the occupational continuum the covert media undergo a change of a qualitative nature. At the upper end of the scale "discussion" and "rumor" tend, in many instances, to be relatively reliable first or

20 second-hand accounts of events and present information or viewpoints
184 which do not get into the official media. On the lower end they tend
565 predominately to be relatively unreliable accounts of unknown origin.
463 They are as much a substitute for as a supplement to official media.
Needless to say, [10] at this end of the scale they are in no sense an indication of "involvement" in the system.

TABLE 3

Level of Exposure by Place of Residence

Place of Residence (5)

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20

5. The classification by place of residence is made according to the answers to the following question: "What kind of place did you spend most of your life in the USSR? Large city, town, village or the country?" The respondent was left to define for himself the meaning of these three categories.

	City	Town	Village
High Exposure to Mass Official Media	69%	50%	19%
High Exposure to Personalized Official Media	31	23	10
High Exposure to Covert Media	40	24	13
High Exposure to Aesthetic Official Media	54	36	11
100% equals	(1232)	(729)	(655)

Educational and residential differences are marked by almost as great variation in communications as are occupational differences. Table 3, for example, shows the relationship between residence and communications exposure for the various types of media. As is seen, the drop in exposure between city, town, and rural areas is almost as dramatic as that between the extremes of the occupational hierarchy.

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466 759 half, or five and a half hours. For instance, pharmacists work seven hours, doctors at the hospitals six and a half hours, and doctors who devote their whole time to the reception of patients at the polyclinics and the ambulatories five and a half hours."[40]

5. Night and overtime work

466 461 As a general rule the length of the work time is shortened at night between 10 P.M. and 6 A.M. Accordingly, when an enterprise works on three shifts, the work time of the night shift is reduced from eight to seven hours. However, at the enterprises whose production is of a continuous nature (for instance, power stations) the length of the work time of a night shift is the same as that of a day shift (Article 96 of the Code of Labor Legislation). Also the length of night work remains the same as that of day work in those professions for which the length of the work time is reduced generally because of harmful conditions of work; it remains equally the same for such workers who have been hired expressly by an enterprise or office to work at night (for instance, a night watchman).[41]

461 Remuneration for night work is usually calculated so that the worker is paid for the shortened night work period as he would have been paid for the normal day period. For instance, a worker who should work in daytime the full eight hours is expected to work on a night shift only seven hours, but his pay for either shift is the same.

The supplement for night work is calculated to deprive the worker of the full value of the additional wages for night work. Since most Soviet workers are piece-workers, their wages for night work are calculated as follows: for the seven hours of the night shift they are paid exactly as for the seven hours of the day shift, according to the piece-work tariff (a higher tariff), and to those wages is added the supplement for night work calculated according to the lower time tariff. As a result, they are not paid for seven hours of the night shift, as they would have been paid for the eight hours of the daytime shift, but as they would have been paid, according to the piece-work tariff, for approximately seven and a half hours of day work.[42]

Certain categories of Soviet workers do not receive any supplemental pay for night work. About these cases Soviet commentators maintain the fiction that their supplement for night work is already included in their wages: "The supplement for night work is included in the tariff rates of wages . . . in the salaries of certain categories of workers. For instance, the day tariff rates of workers occupied on the extraction, drying off or collecting of peat are compared in such a manner that the supplement for night work is included in them."[43]

466 463 Article 94 of the Code of Labor Legislation established the so-called unregulated work day for "responsible" political, professional, and State white-collar workers. This means that the length of their work day is not limited to

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eight hours, but that they are expected to execute their tasks if necessary after the expiration of eight hours. For instance, high administrative, managerial, technical and economic personnel (managers of enterprises, heads of offices, etc.), consulting officers, instructors, judges, procurators, investigation officers, are all included within the category of functionaries with an unregulated work day. But manual workers may be occasionally included within the same category because of the special nature of their work; this is true in particular of chauffeurs and coachmen.[44] One does not need to pity too much the important bureaucrats with unregulated work days because "persons with the unregulated work day are compensated for the extra-time work by higher salaries and supplementary vacation."[45] Although the length of the work day for such people is determined "not by the number of hours, but by the extent of their duties and their work," they are expected to observe at least the normal eight-hour work day obligatory for all officials.[46]

Workers may be ordered by the management of a plant to work after the eight-hour work day if the local trade union agrees to it (this consent is a foregone conclusion in all cases involving the interests of production, because the trade unions are another arm of the State and would never oppose an order justified by urgent needs of the productive process) and if the order concerns one of the cases covered by labor legislation, for example seasonal work which requires a particular intensity of production in a given period of the year. The other cases are enumerated by Article 104 of the Code of Labor Legislation as follows: 1) *the execution of work required* by the needs of national defense (for instance, to fulfill the State Plan of production of war material within the time-limit assigned by the Plan), or of the sort of work which might prevent a natural calamity (for instance, construction of dykes to prevent spring floods); 2) the execution of work indispensable to avoid interruption in such services as water supply, light, sewers, transportation, the post, telegraph, and telephones; 3) urgent termination of a production process which, if not completed immediately, could entail damage to raw materials or machinery; 4) urgent repairs of machinery whose stoppage would hinder a considerable number of workers.[47] The order to work overtime applies also to juvenile workers at least 16 years old. "A worker has no right to refuse to execute the order of the management concerning overtime work."[48] If he does, he is liable to be prosecuted before courts for a willful absence, and will be punished by a fine which is equivalent to a reduction of wages for up to 25 percent and for a period of time up to six months. The only persons exempt from this obligation are "juveniles below age 16, pregnant women, beginning with the fifth month of pregnancy, nursing mothers, and workers affected by tuberculosis in active form."[49] If the management of the factory has not time to secure the agreement of the trade union, its order is nevertheless obligatory for the workers; in such a case the management must only inform the trade union of its order (after its execution).[50]

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TABLE VI

TIME REQUIRED FOR DISABILITY PENSIONS

Age	Men	Women	Underground or harmful-to-health occupations
20-22	3 years of work	2 years of work	2 years of work
22-25	4 " " "	3 " " "	3 " " "
25-30	6 " " "	4 " " "	4 " " "
30-35	8 " " "	5 " " "	5 " " "
35-40	10 " " "	7 " " "	6 " " "
40-45	12 " " "	9 " " "	7 " " "
45-50	14 " " "	11 " " "	8 " " "
50-55	16 " " "	13 " " "	10 " " "
55-60	18 " " "	14 " " "	12 " " "
60-	20 " " "	15 " " "	14 " " "

Pensions for totally disabled invalids requiring constant care who have been incapacitated for reasons not connected with their professional work vary between 67 and 69 percent of the last average wages. The exact percentage depends on the branch of industry or the particular occupation of the person concerned. Totally-disabled invalids who do not require constant care get from 47 to 49 percent of their last wages. The partial invalids receive from 33 to 35 percent of former wages. But there is the usual limitation on all pensions, namely that 300 r. is the upper limit of the former wages that is taken into the computation. As a result, a total invalid of the first group may get a basic pension of 207 r., a total invalid of the second group a pension of 147 r., and a partial invalid of 105 r. Total invalids also get supplements for the length of their entire wage-earning career, those supplements being of from 10 to 25 percent of the basic pension. Moreover, non-working city residents get a supplement to their pensions equivalent to 60 r. Adding it all, one gets these optima figures for the highest-possible pensions of the invalids whose disablement is not due to a professional cause: 318.75 for the first group and 243.75 r. for the second group. The partial invalids of the third group receive neither the supplement for the length of service nor the town residents' supplement, because they are expected to be partially employed.

The respective percentages of the last wages apply to various industries and occupations in the following manner: the highest percentages of 69, 49, and 35 are allocated to persons whose occupation has been underground or harmful to health and to the civil flying personnel; the middle percentages of 68, 48 and 34 apply to the employees of the metallurgical, mechanical-engineering, electric, coal or ore-mining, oil, chemical and rubber industries, and telecommunications and transport; the lowest percentages of 67, 47 and 33 are allocated to the remaining industries, notably the light ones. This dis-

Old age insurance - Pensions for surviving dependents and the funeral allowance 745 562 836

Old people who are not peasants have the right to an old-age pension. All men who have attained age 60 and have been earning their livelihood as State employees for at least 25 years, and all women who have reached age 55 and have worked for the State at least 20 years, have the right to the old-age pension, even if they choose to continue to be gainfully occupied. Men and women who have been occupied in underground or unhealthful work acquire the same right at age 50 and after a work record of 20 years, including 10 years in an underground or harmful occupation. The last average wages are taken into account but as usual to the amount of 300 roubles. As the result old-age pensions are calculated in the following manner:

1) For employees of underground or harmful professions the pension should be equal to 60 percent of the last wages. As the maximum figure for wages taken into consideration is 300 r., the best pension is 180 r. All pensions awarded to non-working people residing in cities or workers' settlements being increased by 60 r., the pensions of these pensioners are at the highest, 240 r. 745 463

2) However, "the employees of leading professions or leading shops of certain most important branches of the national economy (coal-mining, metallurgical, chemical, and some other) receive old-age pensions on privileged conditions: after attaining age 50, if they have been employed in such an industry for at least 20 years, their pension amounts to 50 percent of the salary or tariff rate (without any upper limitation)."[48] Old-age pensions of those privileged officials and workers might be any amount as long as they are not higher than 50 percent of their last wages or last salary. The usual general limitation of 300 roubles does not apply. One may better comprehend what Soviet legislation means by leading professions in privileged industries by the following illustration: "For instance, such advantages are granted in the coal-mining industry to workers in underground pits, the mining foremen, the certified engineering-technical, managerial, and some other officials."[49] Privileged treatment is, thus, reserved for hard-working miners, but also for controlling officials of the economic bureaucracy.

3) All other employees of privileged industries (coal-mining, ore-mining, metallurgical, machine construction, electric, oil, chemical, telecommunication, and all types of transport), who have not belonged to the so-called leading professions or to leading shops in their respective industries, receive a pension that is equal to 55 percent of their last salary or wage with the usual limitation to 300 roubles as the maximum of wages taken into consideration. Their old-age pension will be 165 roubles and for those residing in cities or workers' settlements, 225 roubles.

4) All other workers and officials receive an old-age pension equal to 50 percent of their last salary or wage, but the usual limitation of 300 roubles applies. Their usual pension will be 150 roubles, and for those who continue to reside in cities, 210 roubles.

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361 is somewhat higher than that classified as rural; this is also the case in Kirgizia. In some districts, as in the Moscow Province, Dagestan, the Transcaucasus, and some mining districts, the rural population includes a considerable proportion dependent on other occupations than agriculture, forestry, fishing, and hunting. In general, however, the rural-urban break corresponds roughly to the division between population dependent on agriculture and related occupations and that dependent on industry, mining, trade, transportation, and administration. Persons chiefly dependent on handicrafts and shop industries are divided fairly evenly between urban and rural areas.

2. *Occupational Characteristics*

162 The distribution of the populations of the various regions by occupational class in 1926 is shown in Figure 12 and, in somewhat greater detail, in Table 27. The proportion dependent on industrial occupations of all sorts (manufacturing, mining, construction, railway transportation, and other transportation) was 10 percent or over in only five cases: the Leningrad-Karelia Region (16 percent); the Central Industrial Region (15 percent); and the Ural, Crimean, and

TABLE 27

Percentage Distribution of Population of Regions by Occupational Class: U.S.S.R., December 17, 1926[1]

Division or Region	Class I			Class II				
	Agriculture, Forestry, Fishing	Craft and Shops	Subtotal Class I	Manufacturing, Mining	Construction	Railroad Transport	Other Transport	Subtotal Class II
U.S.S.R.	78.17	3.17	81.34	4.48	.69	1.96	.80	7.93
Belorussian S.S.R.	81.46	3.70	85.16	2.08	.61	1.61	.54	4.84
Ukrainian S.S.R.	77.78	3.64	81.42	5.26	.57	1.86	.67	8.36
Northeastern Region	86.30	1.38	87.68	2.36	.31	1.33	.79	4.79
Leningrad-Karelia Region	60.80	3.02	63.82	10.58	.93	3.07	1.73	16.31
Western Region	85.46	2.03	87.49	3.48	.37	1.41	.24	5.50
Central Industrial Region	66.74	3.77	70.51	10.47	1.15	2.32	1.11	15.05
Central Black Soil Region	88.66	2.01	90.67	1.14	.33	1.85	.10	3.42
Vyatka Region	90.62	1.12	91.74	2.22	.22	.66	.18	3.28
Ural Oblast'	74.92	2.81	77.73	7.56	.69	2.60	.68	11.53
Bashkir A.S.S.R.	87.74	2.40	90.14	1.86	.40	1.05	.45	3.76
Central Volga Region	86.90	1.91	88.81	1.81	.35	1.49	.44	4.09
Lower Volga Region	77.50	4.02	81.52	3.14	.63	1.86	1.37	7.00
Crimean A.S.S.R.	52.41	7.05	59.46	4.51	1.53	1.84	3.71	11.59
North Caucasian Kray	74.08	4.14	78.22	3.55	1.06	2.58	1.05	8.24
Dagestan A.S.S.R.	79.57	5.43	85.00	1.16	.62	1.36	1.12	4.26
Siberian Kray	81.27	2.99	84.26	2.11	.88	2.22	.71	5.92
Buryat-Mongolian A.S.S.R.	85.76	1.86	87.62	.86	.45	1.35	.41	3.07
Yakutsk A.S.S.R.	89.89	2.02	91.91	.51	.27	—	.59	1.37
Far Eastern Kray	67.90	3.78	71.68	2.97	.74	6.11	2.28	12.10
Kazakh A.S.S.R.	89.77	1.47	91.24	.55	.34	.89	.31	2.09
Kirgiz A.S.S.R.	90.00	2.33	92.33	.41	.53	.21	.41	1.56
Uzbek S.S.R.[2]	81.38	5.41	86.79	.90	.65	.95	.64	3.14
Turkmen S.S.R.	83.39	1.79	85.18	.93	.46	3.58	.95	5.92
Transcaucasian S.F.S.R.	79.97	4.21	76.18	3.88	1.03	1.93	1.63	8.47

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TABLE 27 (*Continued*)

Percentage Distribution of Population of Regions by Occupational Class: U.S.S.R., December 17, 1926[1]

Division or Region	Class III: Trade and Credit	Public Service	Miscellaneous	No Occupation or Unknown	Unemployed	Military	Subtotal Class III
U.S.S.R.	2.18	2.89	2.18	1.82	1.14	.52	10.73
Belorussian S.S.R.	2.01	2.48	1.62	1.60	.90	1.38	9.99
Ukrainian S.S.R.	2.29	2.54	2.10	1.66	1.13	.50	10.22
Northeastern Region	1.24	2.57	1.10	1.69	.74	.20	7.54
Leningrad-Karelia Region	3.29	5.16	2.94	3.60	3.16	1.71	19.86
Western Region	1.35	2.10	.98	1.37	.62	.59	7.01
Central Industrial Region	3.06	4.29	2.23	2.58	1.82	.46	14.44
Central Black Soil Region	1.23	1.80	.94	1.18	.51	.24	5.90
Vyatka Region	.79	1.80	.79	1.24	.29	.06	4.97
Ural Oblast'	1.81	2.95	2.56	2.33	.95	.14	10.74
Bashkir A.S.S.R.	1.18	1.76	1.67	.96	.44	.08	6.09
Central Volga Region	1.47	2.21	1.14	1.33	.75	.20	7.10
Lower Volga Region	2.30	3.20	2.56	1.93	1.32	.17	11.48
Crimean A.S.S.R.	5.62	7.73	4.91	3.89	4.09	2.72	28.96
North Caucasian Kray	2.62	3.34	3.76	1.84	1.48	.50	13.54
Dagestan A.S.S.R.	2.22	2.18	2.56	2.88	.54	.36	10.74
Siberian Kray	1.69	2.61	2.68	1.61	.89	.34	9.82
Buryat-Mongolian A.S.S.R.	1.36	2.58	1.04	2.44	.65	1.25	9.32
Yakutsk A.S.S.R.	1.17	2.11	1.72	.97	.66	.09	6.72
Far Eastern Kray	2.79	4.42	3.04	2.14	1.96	1.87	16.22
Kazakh A.S.S.R.	1.29	1.54	2.58	.79	.42	.05	6.67
Kirgiz A.S.S.R.	1.61	1.39	1.87	.60	.44	.19	6.10
Uzbek S.S.R.[2]	2.73	2.20	2.75	1.15	.55	.68	10.06
Turkmen S.S.R.	2.02	2.32	.71	1.77	.49	1.58	8.89
Trancaucasian S.F.S.R.	3.47	3.92	3.50	2.41	1.12	.94	15.36

[1] Data from census, adjusted by proportional distribution of children under 10 reported as occupied but not otherwise specified. For a discussion of data available on the occupational distribution of the population, see Appendix V.

[2] Including the Tadzhik A.S.S.R.

the Soviet Far Eastern regions (each about 12 percent). The proportion dependent directly on manufacturing and mining was above 10 percent in only two cases: the Leningrad-Karelia and the Central Industrial regions; the Ural District came next with 8 percent. Manufacturing and mining supported 5 percent of the population in the Ukraine, 4.5 percent in the Crimea, 4 percent in the Transcaucasus, about 3.5 percent in the North Caucasus and in the Western Region, and about 3 percent in the Lower Volga Region and in the Far Eastern Territory. In all other major regions less than 3 percent of the population was dependent on manufacturing and mining. The proportion dependent on employment in transportation was highest in the Far Eastern Territory (8.4 percent), the Crimea (5.6 percent), and the Leningrad-Karelia Region (4.8 percent).

The occupational structure of the Crimea is most complex. This region had the lowest proportion of total population dependent on agriculture, forestry, or fishing (52 percent), although

it contains some of the richest farm land in the Soviet Union. The proportion of persons *primarily* dependent on handicrafts and shop industries was unusually high in the Crimea (7 percent). Incidentally, a somewhat similar situation is indicated for several other regions with a large non-Russian population; the comparable proportion was as high as 5 percent in Uzbekistan (Central Asia) and Dagestan (a hill region northeast of the Caucasus Mountains) and 4 percent in the Transcaucasus, North Caucasus, and Lower Volga regions. The Crimea also showed higher than average proportions dependent on manufacturing and mining, construction, non-railway transportation, trade and credit, public service (influenced in this case by a greater proportion of city dwellers and many sanitoria), "miscellaneous" (independent profes-

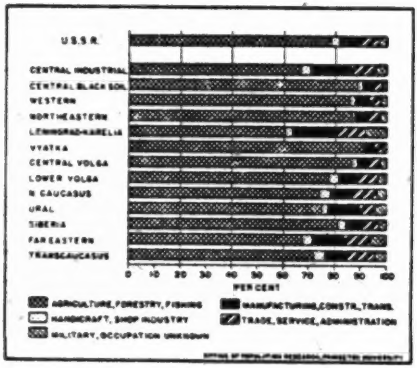

FIGURE 12. Percentage Distribution of Population of Specified Regions by Occupational Class: U.S.S.R., December 17, 1926 [Table 27]

sional, casual labor, and domestic service), no occupation or occupation unknown, unemployed, and military personnel. In the Crimea 29 percent of the total population fell in classes other than agriculture or industry: i.e., in the trade, service, miscellaneous, unemployed, and military groups. Elsewhere, the nearest approach to such complexity of the occupational pattern, as indicated by the proportion of the population not classified as immediately dependent on either agriculture or industry, is found in the Leningrad-Karelia Region (20 percent), the Far Eastern Territory (16 percent), the Transcaucasus (15 percent), and the Central Industrial and the North Caucasus regions (14 percent).

The proportions dependent on the traditional peasant or pastoral occupations (agriculture, forestry, fishing, and handicrafts and shop industry) in various parts of the Soviet Union in 1926 ran as follows:

1. Under 65 percent	Crimea, Leningrad-Karelia
2. 65-74 percent	Central Industrial, Far Eastern
3. 75-79 percent	Transcaucasus, North Caucasus, Ural
4. 80-84 percent	Ukraine, Lower Volga, Siberia
5. 85 percent or over	Belorussia, Northeast, Western, Central Black Soil, Vyatka, Bashkiria, Central Volga, Dagestan, Buryat-Mongolia, Yakutia, Kazakhstan, Kirgizia, Uzbekistan, Turkmenia

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According to the 1926 census data presented in Table 37, employed persons (i.e., "workers" and "employees"—the latter term referring to clerical, professional, technical, and related occupational classes) constituted only 11 percent of the potential labor force ("active popula-

[463]

TABLE 37

Number of All Occupied Persons in the U.S.S.R., 1926; Number of Employed Persons, 1926, 1930, and 1939[1]

(Numbers in Thousands)

Occupation	Total "Active Population" 12/17/1926	Employed Personnel			
		12/17/1926	1926-1927	1930	Estimated 1/17/1939
Total	86,220[2]	9,583[3]	10,944	14,531	28,539[4]
All Civilian Occupations	82,713	—	—	—	—
Agriculture and Related Occupations	71,735	1,202	2,078	2,208	3,935
Agriculture	—	—	—	1,552	2,535
Forestry	—	—	—	611	1,300
Fishing	—	—	—	45	100
Handicrafts and Shop Industry	1,866	301	423	290	400
Manufacturing, Mining, Construction, Transport, and Trade	5,606	4,734	5,338	8,482	16,955
Manufacturing and Mining	2,792	2,790	2,839	4,264	9,135
Construction	364	147	547	1,623	1,963
Railways	890	890	1,006	1,084	1,570
Other Transport	403	229	296	415	1,486
Trade and Credit	1,157	678	650	1,096	2,801
Public Administration and Social Service (including Communication)	2,030	1,893	2,400	3,152	6,932
Communication	—	—	95	153	414
Education (including Art)	—	—	715	921	2,623
Health	—	—	365	477	1,267
Municipal Service	—	—	105	131	805
Administration	—	—	1,120	1,470	1,823
Independent Professional	137	—	—	—	—
Casual Labor, Domestic Service, etc.	1,476	1,453	705	399	317
Other "Active"	3,507	—	—	—	—
Pensioners; No Occupation; Unknown	1,862	—	—	—	—
Unemployed	1,014	—	—	—	—
Military	631	—	—	—	—

[1] See Appendix V for description of sources and adjustments, and data for intervening years.

[2] All gainfully occupied persons, including peasants, members of cooperatives, etc., exclusive of children under 10 years of age, reported as gainfully occupied but not otherwise classified.

[3] Workers and employees according to census, December 17, 1926. The figures in all later columns are based on employment statistics.

[4] Figures interpolated between 1937 and 1942 estimates. The total employment figure interpolated between the 1937 and the 1940 estimates is 28,747,000.

livestock resources. An intensive campaign for the production of food crops in 1933 was rewarded with a good grain harvest, and the agricultural situation was stabilized thereafter. This crisis had far-reaching effects, including, as we shall see in a later chapter, an apparent interruption of population increase.

3. Distribution of Population by Occupational Class, 1926 and 1939

It is difficult to make an exact estimate of the change in farm population or of the number of persons in various economic classes from 1926 to 1939. According to the 1926 census, the population dependent on agriculture, forestry, and fishing was 114,056,000 persons, including 2,128,000 persons dependent on wage or salaried work in agriculture, forestry, and fishing. This was 78 percent of the total population. Two methods of estimating the farm population in 1939, similarly defined, are described in Appendix V.[1] On one method (Assumption A), the figure obtained for January, 1939, is 97,117,000 persons, i.e., 57 percent of the total population. This may be accepted as a maximum, or very nearly a maximum, figure. An alternative method (Assumption B) gives 91,751,000 persons, i.e., 54 percent of the total population. This, in turn, may be accepted as very close to the minimum possible figure. Conversely, the population dependent on manufacturing, mining, construction, transportation, and trade rose from 14.7 million persons (10 percent of the total) to an estimated 40.9-44.9 million persons (24-26 percent of the total); persons dependent on public administration and social services rose from 4.6 million (3 percent of the total) to 16.8-18.4 million (about 10 percent of the total). There was an apparent increase in the population primarily dependent on "handicrafts and shop industries," presumably owing to the transfer of such activities from households to specialized cooperative or private enterprises. These distributions are shown in Table 40 and Figure 16.

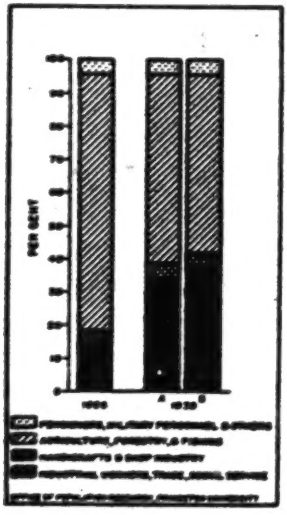

FIGURE 16. Estimated Distribution of the Soviet Population by Broad Occupational Class, 1926 and 1939 [Table 40]

1 [Cf. p. 2184.--Analyst]

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TABLE 40

Estimated Distribution of the Soviet Population by Broad Occupational Class, 1926 and 1939[1]

Occupational Class	1926		1939 (Estimated)			
			Method A		Method B	
	Number (In thousands)	Percent	Number (In thousands)	Percent	Number (In thousands)	Percent
Total	147,028	100	170,467	100	170,467	100
Agriculture, Forestry, and Fishing	114,056	77.6	97,117	57.0	91,751	53.8
Collective and Private Sectors	111,928	76.1	87,634	51.4	81,332	47.7
Employed Personnel	2,128	1.5	9,483	5.6	10,419	6.1
Handicrafts and Shop Industry	4,632	3.2	7,791	4.6	7,395	4.3
Collective and Private Sectors	3,970	2.7	6,827	4.0	6,336	3.7
Employed Personnel	662	0.5	964	0.6	1,059	0.6
Industry, Trade, and Social Service	22,130	15.0	58,400	34.3	64,162	37.6
Manufacturing, Mining, Construction, Transport, and Trade	14,729	10.0	40,862	24.0	44,894	26.3
Public Administration and Social Services (plus Independent Professional, 1926, and "Nonworker," 1939)	4,588	3.1	16,774	9.9	18,429	10.8
Casual Labor, Domestic Service	2,813	1.9	764	0.4	839	0.5
Pensioners, Military Personnel, Unknown (plus Unemployed and Children Under 10 Years Reported as Gainfully Employed, 1926)	6,210	4.2	7,159	4.2	7,159	4.2

[1] For sources and discussion of alternative estimates for 1939, see Appendix V. Percentages for 1926 differ from those presented in Table 27 because the latter were adjusted by proportional distribution of children under 10 years reported as gainfully employed but not otherwise specified.

4. *Changes in Farm Population, Livestock, and Sown Land*

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[162]
[311]

There was a decrease between 1926 and 1939, not only in the proportion of the Soviet population dependent on agriculture, but in the absolute size of the farm population. This is certain, although the exact amount of the decrease cannot be stated with any confidence. Nevertheless, during the same period there was an absolute increase in the extent of land under cultivation.[4] The acreage in grains increased 11 percent during the period 1928-1938, with most of the in-

[4] The agricultural situation did not change much between 1926 and 1928. Data for the years 1928-1938 are used for analysis of trend in sown area during the intercensus period. (See Table 41.)

APPENDICES

TABLE A 10

Trend of the Employed Labor Force: U.S.S.R., 1926-1939
(Numbers in Thousands)

Occupation	Total "Active" Population 12/17/1926	Employed Personnel (Workers and Employees) 12/17/1926	1926-1927	1938
Total	86,220[3]	9,583[3]	10,944	31,599
All Civilian Occupations	82,713	—	—	—
Agriculture and Related Occupations	71,735	1,202	2,078	2,037
Agriculture	—	—	—	1,676
Forestry	—	—	—	331
Fishing	—	—	—	30
Handicrafts and Shop Industry	1,866	301	423	408
Manufacturing, Mining, Construction, Transport, and Trade	5,606	4,734	5,338	5,771
Manufacturing and Mining	2,792	2,790	2,839	3,096
Construction	364	147	547	723
Railways	890	890	1,006	971
Other Transport	403	229	296	299
Trade and Credit	1,157	678	650	682
Public Administration and Social Service (including Communication)	2,030	1,893	2,400	2,574
Communication	—	—	95	95
Education (including Art)	—	—	715	789
Health	—	—	365	399
Municipal Service	—	—	109	117
Administration	—	—	1,120	1,174
Independent Professional	137	—	—	—
Casual Labor, Domestic Service, etc.	1,476	1,453	705	809
Other "Active"	3,507	—	—	—
Pensioners; No Occupation; Unknown	1,862	—	—	—
Unemployed	1,014	—	—	—
Military	631	—	—	—

forestry, fishing, and handicrafts and shop industry (i.e., reported figures for 1935). Minor differences in classification of construction and transportation are ignored and the reported figures are used without adjustment.

The figures for January 17, 1939, are interpolated between the figures for 1937 and 1942 (1937 *plus* .3092 x difference) with an alternative interpolation for the total number, using the 1940 estimate (see notes 3 and 4 of Table A 10).

According to the employment statistics the average number of workers and employees during 1926-1927 was 10,944,000. This figure is 14.2 percent above the corresponding census figure of 9,583,000 for December 17, 1926. The figures have a somewhat different time reference, but this is probably a minor source of difference. As might be expected, the greatest discrepancies appear in construction, agriculture and related occupations (employed personnel), and handicrafts. The employment figure for agriculture and related activities is 73 percent above the corresponding census figure (a difference of 876,000 persons) and that for handicraft and shop industries is 41 percent

APPENDIX V

NOTES ON THE EMPLOYED LABOR FORCE AND ECONOMIC CLASSES IN THE SOVIET UNION, 1926-1939

463 Data are available on the distribution of the population by occupation and family status at the time of the census, December 17, 1926. There are also current statistics on employment for the period 1926-1937, an estimate of total employment in 1940, a forecast of planned development for 1937-1942, and certain "social classifications" of the population of the Soviet Union for 1937 and 1939.

The 1926-census data are based on a classification of all persons according to "usual occupation" or family status in relation to gainfully occupied persons. Employed personnel in the Soviet Union refers to two classes: "workers" and "employees." The latter term includes clerical and professional employees and some types of technical and service workers. All others are classified as "workers." The category here referred to as "handicrafts and shop industry" is designated "small household and handicraft industry" in the census (melkaya i kustarno-remeslennaya promyshlennost). It includes weaving, spinning, and sewing; garment, boot, and harness shops; builders, blacksmiths, tinsmiths, jewelers, bakers, barbers, et cetera. The category "agriculture, forestry, and fishing" also apparently includes some handicraft workers, as is shown by the detailed classification of workers and employees in this group. The classification scheme obviously reflects the primitive, unspecialized character of much of the economic activity of the Soviet population at this time.

Various sources follow somewhat different schemes in the classification of workers by industry, so that some adjustment is necessary to give comparable results. The division between "large-scale industry" (roughly comparable to manufactures and mining in the 1926 census classification) and "small industry" (roughly comparable to handicrafts and shop industries in the 1926 census) is dropped for 1937 and later years; the single figure for "industry" thereafter also includes part of the labor force previously classed under forestry, construction, and transportation, although these categories are retained with restricted application.[1] Therefore some adjustment is necessary in order to give comparable figures on the employed labor force by major industrial groups for the whole intercensus period, 1926-1939. These adjustments do not affect the figures on total employment. They are made only to give some indication of trend by major groups. The results are presented in Table A 10.

The sources and adjustments are as follows:

Data for December 17, 1926, are from the census, Volume 34, giving classification by "principal occupation."

Data for 1926-1927 through 1935 are from *Trud v SSSR, 1935*, Title 448, pp. 10-11. (Compare *Sotsialisticheskoye Stroitel'stvo 1935*, Title 400, pp. 308-309, and *1936*, pp. 508-[illegible].) These data refer to average annual volume of labor, as reported by industries. "Large industry" in these tables is assumed to be equivalent to manufacturing and mining in the census classification. "Small industry" is assumed to be equivalent to handicrafts and shop industry in the census classification. Communication is transferred to public service ("institutions") to conform to the census classification.

Data for [illegible] and planned figures for 1942 are from *Tretiy Pyatiletniy Plan*, Title 461, pp. 228-229. The new classification scheme used in this source differs from that used in 1926-1927 through 1935. The new classification is also used in *Sotsialisticheskoye Stroitel'stvo, 1933-1938*, Title 410, p. 138, which gives data for 1932, making possible a comparison and partial adjustment of the two schemes. The figures [illegible] conform to the earlier scheme, so far as possible. Figures for forestry, fishing [illegible] forward from 1935. In the later sources giving data for 1932, 1935, [illegible] figure for "industry" includes workers in forestry, fishing, and handicrafts and shop in [illegible] for a specific part of the forestry group which is separately reported [illegible] in 1941 [illegible] in 1942). "Manufacturing and mining," therefore, is here estimated [illegible] forestry" (specific part) *minus* the estimated total number in

[1] Compare [illegible] *Sotsialisticheskoye Stroitel'stvo, 1935*, Title 400, and *Ibid., 1933-1938*, Title 410. The change [illegible] forestry, but less important as regards construction and transportation.

POPULATION OF THE SOVIET UNION

TABLE A 10 (*Continued*)

Trend of the Employed Labor Force: U.S.S.R., 1926-1939
(Numbers in Thousands)

Occupation	Employed Personnel (Workers and Employees) 1930	1932	1933	1934	1935
Total	14,531	22,943	22,325	23,681	24,770
All Civilian Occupations	—	—	—	—	—
Agriculture and Related Occupations	2,208	4,097	4,123	4,414	4,374
Agriculture	1,552	2,858	2,819	3,094	2,974
Forestry	611	1,140	1,193	1,209	1,300
Fishing	45	99	111	111	100
Handicrafts and Shop Industry	290	248	327	348	401
Manufacturing, Mining, Construction, Transport, and Trade	8,482	13,884	12,933	13,849	14,479
Manufacturing and Mining	4,264	6,481	6,229	6,531	7,066
Construction	1,623	3,126	2,361	2,618	2,204
Railways	1,084	1,527	1,474	1,603	1,789
Other Transport	415	696	831	952	1,133
Trade and Credit	1,096	2,054	2,038	2,145	2,287
Public Administration and Social Service (including Communication)	3,152	4,373	4,526	4,660	5,122
Communication	153	224	257	295	334
Education (including Art)	921	1,347	1,463	1,568	1,725
Health	477	647	681	739	809
Municipal Service	131	237	373	378	509
Administration	1,470	1,918	1,752	1,680	1,745
Independent Professional	—	—	—	—	—
Casual Labor, Domestic Service, etc.	399	341	416	410	394
Other "Active"	—	—	—	—	—
Pensioners; No Occupation; Unknown	—	—	—	—	—
Unemployed	—	—	—	—	—
Military	—	—	—	—	—

above the census figure (a difference of 122,000 persons). These differences are consistent with the large amount of seasonal employment characteristic of Russian economy, especially in rural industries. According to the 1926 census, 5,425,000 persons, chiefly resident in rural areas, reported secondary occupations, of whom 2,047,000 gave agriculture or related activities and 1,804,000 listed handicrafts and shop industry as the chief source of supplementary income. The industrial employment figure for manufacturing and mining is only 2 percent above the corresponding census figure.

The handicraft and shop industry class represents a heterogeneous group including traditional handicrafts, small weaving establishments, et cetera. (Forestry and fishing cooperatives are apparently included in this category in the later "social classifications" of 1937 and 1939.) The trend of this group is difficult to interpret. Apparently it reflects two tendencies, which are phases of the same general development but which have opposite effects on the classification of persons in this category: (1) the transfer of economic activities from the traditional handicraft field to manufacturing and mechanical industries, and (2) the transfer of supplementary lines of peasant activity into more highly organized cooperative enterprises, owing to greater specialization in agriculture.

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TABLE A 10 (*Continued*)

Trend of the Employed Labor Force: U.S.S.R., 1926-1939
(Numbers in Thousands)

Occupation	Employed Personnel (Workers and Employees) 1937	1940	Planned 1942	Estimated 1/17/1939
Total	26,989	30,400[3]	32 000	28,539[4]
All Civilian Occupations	—	—	—	—
Agriculture and Related Occupations	3,883	—	4,050	3,935
Agriculture	2,483	—	2,650	2,535
Forestry	1,300	—	1,300	1,300
Fishing	100	—	100	100
Handicrafts and Shop Industry	400	—	400	400
Manufacturing, Mining, Construction, Transport, and Trade	15,950	—	19,200	16,955
Manufacturing and Mining	8,561	—	10,416	9,135
Construction	2,023	—	1,820	1,963
Railways	1,512	—	1,700	1,570
Other Transport	1,272	—	1,965	1,486
Trade and Credit	2,582	—	3,299	2,801
Public Administration and Social Service (including Communication)	6,415	—	8,085	6,932
Communication	375	—	500	414
Education (including Art)	2,425	—	3,065	2,623
Health	1,118	—	1,600	1,267
Municipal Service	754	—	920	805
Administration	1,743	—	2,000	1,823
Independent Professional	—	—	—	—
Casual Labor, Domestic Service, etc.	341	—	265	317
Other "Active"	—	—	—	—
Pensioners; No Occupation; Unknown	—	—	—	—
Unemployed	—	—	—	—
Military	—	—	—	—

[1] All gainfully occupied persons, including peasants, members of cooperatives, etc. The census data on gainful workers (first two columns) are exclusive of 1,134,000 children, under 10 years of age, reported as gainfully occupied but not otherwise classified.

[2] Workers and employees according to the census, December 17, 1926. The figures in all later columns are based on employment statistics (see text for sources).

[3] Voznesenskiy, *Pravda*, February 19, 1941.

[4] Figures interpolated between 1937 and 1942 estimates. The total employment figure interpolated between the 1937 and the 1940 estimates is 28,747,000.

The most significant division within Soviet economy is that between (I) agriculture, forestry, fishing, and handicrafts and shop industry, and (II) manufacturing, mining, construction, transportation, trade, and public service. The trend of personnel in the latter division (Group II) is shown with approximate accuracy by the employment statistics from 1928 through 1939. Other data must be used to study the trend in the first of these broad divisions (Group I). The use of employment data alone (in contrast to census data) gives a slightly exaggerated picture of the expansion in

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TABLE A 15

162 463 Estimated Population (Including Family Dependents) in Principal Occupational Classes in the Soviet Union, January 17, 1939[1]

Occupational Class	Total Population		Expected Urban Population
	Number	Percent	
Total	170,467,186	100	56,592,000[2]
Agriculture and Related Occupations	90,815,000	53.3	2,361,000[3]
Collective Farm Group	76,045,000	—	—
Private Farm Group	5,287,000	—	—
Worker-Employee Group in Agriculture	6,109,000	—	—
Worker-Employee Group in Forestry and Fishing	3,374,000	—	—
Handicrafts and Shop Industry	7,300,000	4.3	4,278,000[4]
Cooperative Group	3,904,000	—	—
Private Group	2,432,000	—	—
Worker-Employee Group	964,000	—	—
Industry, Trade, and Social Service	58,400,000	34.3	45,377,000[5]
Manufacturing, Mining, Construction, Transport, and Trade	40,862,000	—	—
Public Service	16,706,000	—	—
"Non-worker"	68,000	—	—
Casual Labor and Domestic Service	764,000	—	—
Miscellaneous	7,159,000	4.2	2,348,000[6]
"Social Group Not Indicated"	1,244,000	0.7	—
Pensioners, Military Personnel, etc.	5,915,000	3.5	—
Unaccounted (Total Population Minus Estimated Population in Specified Class)	6,793,000	4.0	2,228,000[6]

[1] Figures, unless otherwise indicated, are taken or derived from Tables A 11 and A 14.
[2] Urban population according to census of January 17, 1939, was 55,009,908.
[3] Applying proportion according to census, 1926 (.026).
[4] Applying proportion according to census, 1926 (.586).
[5] Applying proportion from *Trud*, 1935, pp. 26-27 (.777).
[6] Applying proportion of total population, 1939 (.328).

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disinterested assistance which they have rendered and continue to render in the development of the economy and culture of our republic . . ."[10] This "declaration" is especially revealing since it was made by a representative of the Yakuts, who are known even among the northern nationalities as the most determined nationalists.

The economy of the native nationalities of the North has three main branches: fur trade, reindeer breeding, and fishing. The first two branches are of nation-wide significance, while the fish are used only for local consumption.[11] Just before the war, however, certain measures undertaken by the Main Administration of the Northern Sea Route and by the Ministry of Fishing resulted in some commodity production. The lower reaches of the Yenisei River, for example, annually yielded 18,000–25,000 centners of fish for sale. On Novaya Zemlya, in 1937, 4,000 centners of fish were delivered to commercial organizations.[12] During World War II, the difficult food situation in the country forced an increase in the procurement of fish from Siberian rivers, particularly in the northern regions.[13] All this, however, did not materially alter the situation: the quantity of fish which goes to the northern industrial population is insignificant, and its receipt is conditional on bringing in a labor force from outside. The fish production of the local nationalities is intended primarily for their own food needs. For various technical and economic reasons, a significant change in this situation cannot be expected in the near future.

The situation is entirely different as regards the fur trade and reindeer breeding. The fur trade has long played an important role in the financial resources of the Russian Government. In times of monetary difficulties, Peter I used to issue a famous order: "Put pressure on the *jasašnye*."[14] Uncontrolled hunting methods eventually resulted in a severe depletion of the northern fur resources. In the eighteenth century, Samoilov, the Yeniseisk deputy to the Legislative Commission under Catherine II, referred to fur as a basic article of trade.[15] By the middle of the nineteenth century, the

[10] "Zasedanija Verkhovnogo Soveta SSSR. V Sovete Nacional'nostej. Reč' deputata S. Z. Borisova. Njurbinskij izbiratel'nyj okrug, Jakutskaja ASSR," *Pravda*, No. 170 (11642), July 19, 1950.

[11] Much the same applies to the hunting of sea animals along the coasts of the White Sea and the Barents Sea.

[12] *Kursy politupravlenija*, *op. cit.*, p. 27. A centner equals 110.23 lb. avoirdupois.

[13] V. I. Kurskij, *Ryby v prirode i khozjajstve čeloveka* (Moscow, 1949), p. 120.

[14] The northern nationalities were obliged to pay the "jasak" (taxes) in fur, and for this reason received the name "jasašnye."

[15] See N. M. Jadrincev, *Siabir' kak kolonija*, 2nd ed. (St. Petersburg, 1892), p. 335.

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[Leningrad]

Few cities have a poorer site, or a better general location. The delta of the Neva River is so swampy that thousands of workmen lost their lives in constructing Peter's new capital. All large buildings rest on piles, for the ground is too soft for normal foundations. There are so many canals and distributaries in the Neva delta that the city needs 500 bridges. 361

The city lies close to sea level, and part of it is inundated when the river is in flood, or when west winds pile up water in the shallow Gulf of Finland. The river is frozen from mid-November till early April. Although four-hundred miles north of Moscow, winter temperatures are 5°F. warmer because of the nearness to the sea. Leningrad lies two thirds of the way from the equator to the pole, so that during the long summer evenings there is enough light to read a newspaper at midnight. Twilight merges into dawn, for the sun barely sinks below the northern horizon. People walk the streets till well after midnight. Winter days are correspondingly short and cold. It is dark until 10 a.m. and after 3 p.m. Two hundred days a year have rain or snow.

If the city is handicapped by its immediate site, it profits from its regional setting. Sea lanes lead to Scandinavia, Germany, and the Atlantic. The Neva provides water links via the Mariinsk Canal system to the headwaters of the Volga, and also to the Dnieper; and via the Baltic-White Sea Canal to the Arctic. These, and the land routes which have long focused on the city, made Czarist St. Petersburg the natural outlet for the northern half of European Russia, the Urals, Central Asia, and even Siberia.

Since St. Petersburg was both the chief seaport and the seat of government, here was where foreign concerns established warehouses and sought business concessions. Specialized domestic industry was dependent on machinery and supplies which were only available here. As import and export business grew, St. Petersburg developed assembly plants and factories. As a result, this was the first city to have skilled mechanics for making typewriters, electrical apparatus, textile machinery, chemicals, and machine tools. This skill has become traditional, and today no city in the Union can duplicate Leningrad's reservoir of highly specialized workers. Leningrad trade-marks rank high all across the country. [463] ●

It was not an accident that the Revolution of 1917 took place in Leningrad. It is not merely because this was the capital; Marxism

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×874 Thus the requirements for entrance examinations which were made compulsory in 1936 are not likely to be relinquished, at the present time at least. And although there are some signs of relaxation of standards in the upper grades of the secondary school, as was already mentioned in chapter II, so far there are no signs of the relaxation of selection procedures by higher educational establishments.

Specialization in Soviet Higher Education

●463 The Soviet term "specialization" has a considerably narrower meaning
×874 than it has in American professional education. In the Soviet Union, "specialization" in professional education means such modification of a training program as to give an individual preparation in a certain, narrowly defined field of knowledge.

Soviet sources distinguish several levels of aggregations of professions by the field of their specialization. As of 1953–54 the pattern of specialization in Soviet professional education and the respective levels of aggregation can be described as follows: [30]

1. Soviet higher education is divided into five areas or branches (*otrasl'*). These are: (1) engineering-industrial; (2) agricultural; (3) socioeconomic; (4) educational; (5) health. These are the categories which will be dealt with extensively throughout this volume.

2. These five areas are composed of a total of 24 specialty groups or fields (*grupovaya spetsial'nost'*). To some extent, these groups resemble the demarcation lines made for American professional education by field of study. There are, for example, such specialty groups as civil engineering, chemical engineering, metallurgy, medicine, etc.

3. These 24 specialty groups or fields represent an aggregate of 295 specialties (*spetsial'nost'*). For instance, power engineering as a specialty group has eight specialties, among which, for example, are power generating, transmission networks, etc. Metallurgy as a specialty group has 10 specialties, some of which are nonferrous metals metallurgy, blast furnaces, and rolling technology. In the specialty group medicine there are seven specialties, i. e., general practice, pediatrics, hygiene, pharmacy, etc. Chemical engineering as a specialty group has 16 specialties, such as heavy chemicals technology, silicate technology, etc.

4. Some of these 295 specialties are further divided into specializations (*spetsializatsiya*). There are about 450 specializations, of

[30] I. Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR* (Training of Specialists for Industry in the U. S. S. R.), Moscow, 1954, 89. See also *VVSh*, No. 5, 1954, 48; No. 9, 1954, 6.

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which institutes account for 388 and universities for 62. In the specialty nonferrous metals metallurgy, for example, there are 11 specializations, including copper and alloys metallurgy, precious metals refining and metallurgy, etc. In power generating as a specialty, there are specializations in large hydroelectric power stations, industrial plant power stations, etc. In medical general practice as a specialty, there are specializations in surgery, otology, etc.

5. Finally, about 135 of these 450 specializations are broken down further into 510 subspecializations (*drobnyye spetsializatsii*). Many of these subspecializations (about 370) are found in the engineering-industrial branch. In the specialization copper and alloys metallurgy, for instance, there are subspecializations such as refining and smelting technology, primary processing, etc.

Table 3 reveals the pattern of grouping specialties in Soviet professional education by group specialties and branches.

To sum up, there are divisions in Soviet professional education which must be clearly distinguished. They are: branch (*otrasl'*), group specialty (*grupovaya spetsial'nost'*), specialty (*spetsial'nost'*), specialization (*spetsializatsiya*), and subspecialization (*drobnaya spetsializatsiya*). While the data in table 3 present a grouping of the types of Soviet professional training by branch, specialty group, and number of specialties, it should be noted that specialty groups correspond roughly to the *type* of institutes there are in Soviet education. The number of specialties (i. e., 295) corresponds roughly to the number of *types* of divisions (*fakul'tety*) found in various institutes and universities.

It is, of course, beyond the scope of this report to present a discussion of every one of these specialties and specializations, and of necessity our discussion must be limited to the larger aggregates (primarily on the branch level). The very number of specializations in Soviet professional education is quite suggestive. These narrow specializations have resulted in what might be called a breakup and differentiation of the traditional concepts of the engineering profession. In some fields, like university programs, for example, this breakup is not so distinct as it is in engineering, where such professional training as mechanical engineering is broken up into several dozen narrow specializations (like mechanical engineering in agricultural machinery, in machine tools, in casting equipment, in automobiles, in tractors, in aircraft engines, etc.). There are metallurgical engineers in copper and alloys, in lightweight metals, in nickel and cobalt, etc. There are mining engineers in the drilling of petroleum and gas wells, in the exploration of coal deposits, etc. There are civil engineers in bridge design, in flat surface structures (roads), in large-scale hydrotechnical structures, in industrial buildings, etc. There is narrow occupational fragmentation in every field of engineering.

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TABLE 3.—*Specialty groups and number of specialties in Soviet higher education (as of 1953–54)*

Branch and specialty groups	Total number of specialties in—	
	Specialty group	Branch
I. Engineering-Industrial branch		188
1. Geology and mining exploration	11	
2. Exploitation of mineral deposits, mining and primary processing	14	
3. Heat and electrical power engineering	8	
4. Metallurgy	12	
5. Machinebuilding engineering[1]	42	
of which—		
a. Heavy machinebuilding	9	
b. General machinebuilding	26	
c. Appliances and instruments	7	
6. Electrical and electronic (design-manufacturing) engineering	9	
7. Chemical engineering	16	
8. Technology of the food industry	12	
9. Wood processing, paper and related technology	6	
10. Light industry technology	12	
11. Printing and publishing	4	
12. Geodesy and cartography	4	
13. Meteorology and hydrology	4	
14. Civil (and other construction) engineering	18	
15. Transportation engineering	13	
of which—		
a. Railroad	5	
b. Water	5	
c. Automotive	2	
d. Air	1	
16. Communication engineering	3	
II. Agricultural branch		22
17. Agriculture and veterinary medicine	19	
18. Forestry	3	
III. Socioeconomic branch		24
19. Economics, planning and finance	22	
20. Jurisprudence	2	
IV. Health branch		8
21. Medicine and pharmacy	7	
22. Physical culture	1	
V. Education and arts branch		53
23. Education	48	
of which—		
a. Universities	20	
b. Pedagogy (upper)	11	
c. Pedagogy (intermediate)	5	
d. Pedagogy (lower)	7	
e. Cultural services	5	
24. Arts	5	
Total specialties		295

[1] General designation for all types of mechanical engineering primarily, as well as for other types—aeronautical, naval, etc.

Source: I. Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR* (Training of Specialists for Industry in the U. S. S. R.), Moscow, 1954, 89.

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This narrow specialization came into being in the early 1930's, but since the late 1930's Soviet educational authorities have waged numerous campaigns (without much success) to put an end to it. There have been many decrees, regulations, and discussions to prevent fragmentation; but, in most instances, confronted with the argument that people trained in these fragmentary subspecializations (*drobnyye spetsializatsii*) are needed by industry for immediate employment, these pronouncements have had very little effect.

The drive in 1952–54 to put an end to fragmentation and to achieve some aggregation of narrow field specializations did not, and is not likely to, result in any drastic change in the near future. Although there has been persistent talk in the last few years concerning the broadening of general nonspecialized scientific or engineering education in order to curtail narrow specialization, so far the tendency which has prevailed over the last 25 years is still in force. As recently as this spring (1955) there was an announcement that the number of subspecializations and even specializations themselves had been "drastically curtailed." [8] But since it is not known how "drastically" it was curtailed and since there have been so many other announcements to the same effect in the past, only future developments in Soviet higher education will give us the answer.

Because of this large number of narrow specializations, because of the functional division of Soviet higher education and subordination of training to applied pursuits within each occupation, there are a great variety of training programs.

Training in Soviet Universities

Soviet universities offer sixty-odd types of training programs. Not all of them can be considered by this report. Whatever field of training is considered, it can be said that the university curriculum is based on 4,500–5,500 instruction hours, with the number of subjects of instruction ranging from 25 to 35. In most programs there is a required set of subjects which every student must take, but in some fields elective courses are offered, particularly in the humanities. The first 2 years are devoted to "general subjects of study," and usually the remaining 3 years are devoted to the major field of study.

1. *Professional Training in Scientific Fields in Soviet Universities*

In our discussion of university training programs a particular example, that is, instruction offered in scientific fields, will be considered. Training

[8] *VVSh*, No. 3, 1955, 3.

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It appears that most students just drift along with the tide of the totalitarian state. They go through the outward motions of learning ideological dictates; they participate in political activities, because it is a common standard of performance, because one is expected to know quotations from Lenin, and because one is expected to march in the May Day parade. What effect does such outward conformity have upon the training of Soviet specialists?

Refugee comments in this regard are revealing. It is stated, for example, that under such conditions the pursuit of knowledge tends to overshadow political indoctrination,[8] that students tend to be concerned with science and bury themselves in it to hide from Soviet reality. Lack of genuine enthusiasm for official doctrines, and escape from reality by greater devotion to academic pursuits, are reported to be very common among Soviet students. This would, in turn, imply that many accounts in the Soviet press concerning universal acceptance of the Communist faith by the army of specialists trained during the last decades must be viewed with great skepticism and with many reservations. To sum up, Communist thought control appears not to be so all-embracing or so effective as Soviet propaganda claims it to be or as some Western observers describe it. The detrimental effects of it upon the training of Soviet specialists and scientists cannot be qualified or measured in any reliable way, but it seems that there is some tendency for scientific truth to overshadow political doctrine even in the Soviet totalitarian state.

11. *Factors in the Choice of Study Field Affecting the Quality of Training*

It is well recognized that there are various factors which exercise an indirect impact upon the quality of training. One of these factors is the placement policy of graduates. According to law, since 1933 all specialists graduating from Soviet higher educational establishments are assigned to jobs.[9] This decree has been reinforced by other regulations (in 1936, 1937, 1940), all restricting the occupational mobility of graduates, and limiting the choice of occupation outside the specialty of their formal training. Job assignment takes place within 5 days after the issuance of the graduation certificate, and the minimum term of assignment is 3 years. In 1940, when labor legislation acts were reinforced through the introduction of labor books (without which an individual cannot be hired anywhere), the opportunity for specialists to change jobs at will was even further reduced. In view of these restrictions, the individual is likely

[8] "My Experience as a Soviet School Teacher," unpublished manuscript, in English, New York: Research Program on the U. S. S. R., 19–20, 37.
[9] Movshovich, op. cit., 208–212.

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to seek occupational training which offers a good chance of satisfying his career expectations.

Since there is a high value placed on certain kinds of professional training, and since some occupations offer higher incomes and material comforts than others, many students choose their fields of training on the basis of these differential rewards. Administrative-managerial positions, scientific research, engineering, university teaching, medicine, agricultural occupations, secondary-school teaching, other social service occupations—these represent a sequential chain of diminishing monetary rewards. Administrative positions are filled not only from the various ranks of professionals, especially engineers, but also from other groups. These individuals, however, are selected primarily for good party standing and for noted past performance of one sort or another. On the whole, professionals of all types fare much better than any other group of wage earners, a consideration which makes higher education in any field quite attractive. Still, there are differential rewards for various occupations within the group of professionals.

Because occupations can be changed only with great difficulty, there is greater pressure toward the "prize" occupations. Engineers and scientists top the list, and therefore establishments offering this training have the greatest number of applicants. Institutes offering training in these fields place greater demands upon the student, and the standards of instruction can be enforced far more rigidly than in certain other fields of training. Thus, it may be easily seen that placement policy and the attraction of certain occupations exercise an impact upon the quality of training.

Another factor, related to the one described above, is that there are undoubtedly fields of science or occupations where the impact of the ever-changing political and ideological orthodoxy is heavily felt. Such fields as biology, agriculture, history, economics, humanities, and the social sciences in general, aside from offering smaller financial rewards, are politically hazardous as well. The party line, though it may be clearly defined at a given moment, may change in the foreseeable future. This may not only cause career handicaps but, in extreme cases, even threaten the individual's very existence. Training in these fields therefore is less attractive than in other professional fields, where the probability of political intervention—which is undoubtedly felt by each individual—is small. Engineering, applied sciences, medicine, and even secondary-school teaching, in the sciences particularly, are therefore more attractive than certain other fields of professional training. This explains to a large extent why there are stagnant fields with only a trickle of graduates each year and why other training establishments must refuse admission to the flocks of aspiring applicants.

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account for graduates of educational establishments operated by Soviet civilian authorities and exclude specialists trained in military or police higher educational establishments or semiprofessional schools, which, if considered, would obviously increase the total number of trained specialists and particularly the number of those trained in the engineering-industrial and health fields.

At the same time, of course, it is obvious that the total number of trained specialists (i. e., 7,170,000) is biased upward because of some double counting. Some semiprofessionals continue their training in higher educational establishments and subsequently are counted as professionals. The extent of this bias cannot be ascertained with precision, but it is probably from 5 to 10 percent of the total number of professional graduates.

During the period 1928–54 the Soviet Union trained about 17 semiprofessionals per 10 professionals, a ratio which according to the Soviet planning norms should have been higher. This ratio of trained semiprofessional personnel and technicians to professional personnel and engineers varied from field to field, being about 28 to 10 in agricultural fields, 25 to 10 in medical fields, 29 to 10 in socioeconomic fields, 18 to 10 in engineering-industrial fields, and only about 12 to 10 in educational and cultural services fields. Thus, the reliance upon the supply of specialized semiprofessional graduates was substantially greater in agricultural, socioeconomic, and medical fields than in engineering or education.

During the last two and one-half decades Soviet efforts in training specialists have centered on engineering-technical and educational fields. About 32 percent of the professional and semiprofessional graduates were trained for the field of education. Engineers and technicians and other specialists on both levels for industry, manufacturing, mining, transportation, and communication accounted for about 27 percent of graduates on both levels. About 20 percent of the specialists were trained for medical and public health fields. Agricultural field specialists accounted for only 13 percent, and all graduates in socioeconomic fields accounted for only 8 percent of specialists trained on both levels during this period.

Supply of Graduates With Higher Education

While a large number of semiprofessionals with completed secondary specialized education who were trained in the period 1928–54 provided additions to the supply of technical, supporting and minor supervisory personnel for the Soviet economy, the flow of graduates from Soviet higher educational establishments was the main source of addi-

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higher education employed in the national economy are taken into account, there were about 45 professionals per 10,000 population.

In 1950 the estimated number of persons with completed higher education employed in the national economy was about 1,513,000. Since Soviet authorities have been reluctant to release figures on the actual population of the Soviet Union in the postwar years, Western observers have had to rely upon various estimates. If we assume the estimated population of the Soviet Union for 1950 as ranging from about 193 million to about 205 million,[*] the number of professionals with completed higher education employed in the national economy ranges from 73 to 78 per 10,000 population. If all living persons with higher education (i. e., military, retired, incarcerated, etc.) are considered, this proportion might increase to as high as 95 to 105 persons with higher education per 10,000 population.[**]

Despite the lack of precision, it is apparent that by 1950 the proportion of persons in the Soviet Union with completed higher education to population was substantially smaller than that in the United States (in 1953 the United States had about 320 persons with higher education per 10,000 population), but slightly higher than that in most West European countries. At the same time it should be stressed that the proportion of persons with higher education in the Soviet population has made enormous gains over the last three decades when the number of persons with completed higher education increased from about 12 in 1926 to at least 80 in 1950 per 10,000 population.

Occupational Composition of Trained Professional Labor Force in the U. S. S. R.

The preceding discussion has dealt with the total supply of graduates and the estimates of the total number of trained specialists employed in the national economy of the U. S. S. R. It is of particular interest to consider now the occupational composition of Soviet professionals employed in the national economy of the U. S. S. R. Table 6 presents a summary of the estimates of trained professionals in different occupations on the basis of which the distribution and the rates of growth for

[*] Eason, "Population and Labor Force" in A. Bergson, *Soviet Economic Growth*, 102; or other population studies (Kulischer, Lorimer, Redding).

[**] This statement is based on two possible methods of estimating the total number of living graduates. One estimate for 1950 is about 1,890,000 living higher education graduates, which can be derived by using techniques already discussed in the earlier part of this chapter (see footnote 5 above). The second estimate for 1950 is about 1,940,000, which can be obtained if the assumption made that the 1939 relationship of all reportedly living persons with higher education to the actual number of persons with completed higher education employed in the national economy remained true for 1950. Both estimates, of course, should be regarded as useful approximations only.

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463 different fields were verified. Before turning to a discussion of the data presented in table 6, several reservations must be made.

The data presented in table 6 refer to persons with completed higher education employed in the national economy only. The definitions of occupational fields which are used in table 6 are the same as those generally employed in Soviet official sources for grouping specialists by branch of employment and graduates by field of training. These categories are broad and designate entire segments of the economy and services rather than narrowly defined occupational fields commonly employed in American practice in reporting this type of information. Consequently, an analysis of these data lacks the desired refinement of occupational categories, which are more narrowly defined and, as a result, more precise.

The figures presented in table 6 for 1929 and 1937 are based on Soviet official reporting of the actual employment of professionals with completed higher education in the respective occupational fields. The 1937 composition of professionals by occupation can also be estimated on the basis of the 1932 actual employment of professionals by branch and annual additions of higher education graduates in the respective fields. This suggests that already by the mid-1930's it is verifiable, in gross terms, that most higher education graduates were employed in occupational fields coinciding with the field of their formal training.

Figures for 1940, 1950, and 1954 were estimated by using average annual rates of attrition (see discussion above) and on the basis of the actual employment of professionals by occupational field in 1937 and the annual influx of graduates in the respective fields.[80] After the estimates were made by using various Soviet pronouncements it was possible to ascertain that actual employment in a number of occupational fields (engineering, agriculture, health) was consistent with and closely approximated the estimates thus derived. Consequently, on the basis of available checks for a number of years and several fields, it was possible to verify the fundamental implication of these estimating procedures. It appears that there is only a limited transfer of graduates formally trained in one field into some other occupational field in the course of their employment.

Although the fundamental assumption of limited transfer is actually verifiable and consequently the data presented in table 6 do reveal the occupational composition of Soviet professionals with completed higher education, the problem of the utilization of professionals within any given occupational category is not solved by these findings. This is particularly true if a narrower definition of occupation is used, or if within a given occupation the vertical mobility of professionals into such positions as

[80] For further details, see appendix to ch. VI, particularly general note to "C" tables, notes to tables C-9, C-10, C-12, and app. C-11.

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TABLE 6.—*Distribution of Soviet trained professionals with completed higher education, by occupational field, and growth of professional fields, 1929–54*

[Year-end employment in the national economy of the U. S. S. R.]

Professionals with completed higher education by occupational training	1929		1937		1940		1950		1954		Ratio of growth from 1929 to 1954
	Thousands	*Percent*	*Thousands*	*Percent*	*Thousands*	*Percent*	*Thousands*	*Percent*	*Thousands*	*Percent*	
Engineers of all types in industry, construction, manufacturing, mining, transportation, communication, and other industrial field professionals	40.7	14.1	262.2	35.1	283.5	33.5	423.0	28.4	541.0	26.6	13.3
Agricultural specialists (agronomists, veterinarians; specialists in conservation, electrification and mechanization of agriculture, forestry)	12.5	4.4	89.5	11.9	97.3	11.4	140.0	9.2	189.0	9.2	15.2
Socioeconomic professionals in: (economics, trade, accounting, banking, planning, statistics, jurisprudence, social and communal services)	41.0	14.2	60.2	8.1	61.7	7.3	88.0	5.8	125.0	6.1	3.0
Educational professionals (teachers for all levels of school and professors—foreign language specialists, other cultural service professionals, art and music instructors and performers)	130.0	45.2	231.0	30.8	284.1	33.5	607.0	40.2	857.0	42.1	6.6
Health professionals in: (medicine—therapeutic and preventive; dentistry, pharmacy, hygiene, professional coaching, and physical culture instructing)	63.5	22.1	105.9	14.1	121.6	14.3	249.0	16.4	324.0	16.0	5.1
Total distributed	287.7	100.0	748.8	100.0	848.2	100.0	1,513.0	100.0	[1]2,036.0	100.0	7.1

[1] In addition, in 1954 there were about 182,000 professionals undistributed by occupational field (a large proportion of whom belong to the educational field). 1954 estimated grand total is 2,218,000.

Source: Tables A–1, A–3, C–9, C–10, C–12 in the appendix to ch. VI. Data for 1929 consist of 1928 and 1929 employment figures. Totals for educational and health field professionals same as in table A–1 in the appendix to ch. VI. Engineering, agricultural, and socioeconomic field professionals from *Nar Khoz—1932*, 488–493. See notes to table 2 in the text above for further comments about Soviet definitions of occupational fields.

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463 administration or management is considered. Furthermore, the limited interoccupational transfer does not preclude (as the Soviet press occasionally reveals in stories about the utilization of professionals) a person from assuming employment in an occupation distinctly different from that which coincides with the field of his formal training. This, however, takes place on a very limited scale only. In view of all this, it must be kept in mind that the problem of utilization of Soviet professionals within a given occupational field constitutes an additional issue, which must be singled out and which will be discussed briefly in subsequent parts of this chapter.

463 162 The data in table 6 reveal the growth of occupational fields and changes in distribution of Soviet professionals. During the 25-year period from 1929 to 1954, the Soviet trained professional labor force increased more than sevenfold. However, during this same period two fields of occupational specialization—engineering and agriculture—experienced growth at a rate twice as high as that for all professional personnel. Growth in other fields was disproportionately lower than increases in the professional labor force as a whole.

There were marked changes in the distribution of professionals by occupational field during this period. The engineering-industrial professionals emerged as the dominant component (about 35 percent) of the total professional labor force by the end of the Second 5-Year Plan (1937). Since then, though the number of engineering-industrial professionals more than doubled from 1937 to 1954 (1937, 260,000; 1954, 540,000), their relative proportion among all professionals has been declining. Despite this, however, in 1954 trained engineering-industrial professionals accounted for about 27 percent of all professionals employed in the national economy of the U. S. S. R., or almost twice their relative share in 1929.

Educational field professionals accounted in 1929 for about 45 percent, and in 1954 for about 42 percent of all professionals. Thus, educational field professionals, after the decline of their relative share to about 30 percent in the mid-1930's, at the end of the 25-year period had almost regained their original proportion and again accounted for the largest segment of all trained professionals. As a result of the 15-fold increase in the number of agricultural field professionals (1929, about 12,000; 1954, about 190,000), their relative proportion more than doubled during the last 25 years, and in 1954 represented about 9 percent of all professionals. Finally, the relative proportion of trained professionals in the health fields and particularly in the socioeconomic segment has declined markedly over the last 25 years.

In 1954 there were over 2 million persons with completed higher education employed in the national economy of the U. S. S. R. In 1954 about 42 percent of these were trained for and employed in the field of

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education, about 27 percent were trained in engineering and related fields and employed in industry, manufacturing, mining, transportation, and communication. In that year about 16 percent were health field professionals, about 9 percent were in agricultural fields, and only 6 percent were in all socioeconomic service fields.

Some Social Aspects of Soviet Professional Labor Force

1. *Place of Women Among Soviet Professionals*

During the last 25 years, the participation of women in professional occupations in the Soviet Union has increased considerably. These changes in the relative proportion of women among professionals in individual fields are summarized in table 7.

The enormous increase in the relative proportion of women in the postwar period came about as a result of the war, and also because there were large numerical increases of professionals in the medical and eductional fields where the relative proportion of women continued to be extremely high. The relative proportion of women among professionals in 1950 was only slightly higher than the relative proportion of women among all workers and employees. In 1950 women accounted for 45.7 percent of all Soviet salaried persons employed in the nonagricultural labor force of salaried workers and employees.[25]

TABLE 7.—*Relative proportion of women among Soviet professionals (Year end)*

Occupational fields	*Percent of women among all professionals*		
	1929	*1940*	*1951*
Engineering	14.7	19.4	.....
Agricultural	9.2	24.4	.....
Socioeconomic	8.2	26.1	.....
Educational	21.0	37.0	.....
Health	47.2	56.9	.....
All fields	23.5	32.6	50.5
Total number, women professionals	68,000	277,000	830,000

Sources: The original 1930 distribution was obtained from *Nar Khoz—1932*, 488–540, and *Itogi Pervogo PYP*, 217. Data for 1940 were obtained as a projection of enrollment trends for women during the period 1930–40 upon data for graduations (see table A–3 in the appendix to ch. IV). The 1939 census serves as a check point (it also gives about 32 percent for women). The 1951 total number of women professionals (830,000) was reported in *Bol'shevik*, No. 12, 1952, p. 4. The percentage was derived on the basis of this total number of women professionals and the estimate of all professionals employed in the national economy in that year (table C–12 in the appendix to ch. VI). The percentage of women professionals in different occupational fields is not available.

[25] As estimated from Eason "Population and Labor Force" in A. Bergson, *Soviet Economic Growth*, 110.

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2. *Social Origins of Soviet Professional Personnel*

After the October Revolution, Soviet leaders envisaged a rapid transformation of the managerial, technical, and cultural leadership in the U. S. S. R. Lenin saw a cultural revolution which would change the face of the intellectual elite in Russia. He felt that the old intelligentsia and professionals would be used only temporarily until the new proletarian cadres of specialists could be trained. Stalin, in the late 1920's and early 1930's, made many pronouncements which called for an increased tempo in the training of specialists from the working class. Both Soviet leaders tended to view the success of the Revolution and the construction of a socialist society as greatly dependent upon newly trained Soviet professionals who would be proletarian by origin. This ideologically and politically dictated orientation was incorporated in voluminous legislation and even in early planning—for example the First 5-Year Plan, which stressed the need for the "proletarization" of specialists (*orabocheniye kadrov*).[27]

The opportunity to accomplish these aims presented itself during the 1930's, when about a threefold increase in the size of the professional labor force was achieved. As was already indicated earlier in this volume (ch. IV), this policy of the proletarization of Soviet professional personnel had to be relaxed in the mid-1930's. The net result of this policy, however, is summarized in table 8.

TABLE 8.—*Composition of Soviet professional personnel by social origin*

Social groups	*Composition of Soviet professionals in percent (year end)*	
	1929	*1940*
Workers and their descendants	9. 7	30. 1
Peasants and their descendants	18. 9	19. 5
"Other": Artisans, intelligentsia, white-collar, and former proprietor classes and their descendants	71. 4	50. 4
Total professionals	287, 700	848, 200

Sources: Original 1929 distribution from *Nar Khoz—1932*, 488–493. Data for 1940 derived by projection of VUZ enrollment by social origin (table A–4, appendix to ch. IV) upon graduation data.

Thus, although the restrictive policies of the Soviet Government succeeded in raising about threefold the proportion of workers and their descendants by origin among Soviet professionals, on the whole during this crucial decade it was the "other" groups (i. e., nonworkers, intelligentsia, white collar, etc.) who were still largely responsible for additions to professional personnel.

The particular significance of this development can be appreciated when it is understood that "other" groups (intelligentsia, white collar,

[27] *Plan Kadrov—1930*, 118–129. Bellin, *Kadry*, discusses this problem on almost every page.

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and other minor categories), who in 1939 accounted for only about 7 percent of the U. S. S. R.'s total population, were responsible for about 40 percent of the additions to the professional labor force. While workers and their descendants, despite the forceful policy, were responsible for additions to professional personnel only slightly higher than their relative share in the total population, peasants, who represented about 60 percent of the Soviet population, were responsible for less than 20 percent of the additions to Soviet professional personnel.

It can be argued that because of the expansion of all educational facilities (particularly secondary education in urban centers) in recent years, the relative share of workers and their descendants by origin among Soviet professionals increased somewhat in the postwar period. There is an equally strong argument, however, that in all probability the trend of the increasing proportion of "other" (nonproletarian and nonpeasant) groups among graduates of Soviet higher educational establishments continued in the postwar period. The second argument seems more plausible particularly in view of the fact that the Soviet Government has suppressed the release of any statistical data (though they are still compiled) dealing with the distribution by social origin of students in Soviet higher educational establishments. This complete taboo on discussing the social origin of Soviet professionals suggests the presence of unfavorable trends, which unfortunately cannot be assessed in quantitative terms.

3. *Soviet Professionals and Communist Party Membership*

It is particularly revealing to note that from 1929 to 1947 many Soviet professionals were recruited into the ranks of the Communist Party of the Soviet Union. In 1929 only about 7 percent of all professionals were members of the Communist Party.[28] In 1947 about one-third of all Soviet professionals were Communist Party members. In 1947 about 38 percent of all engineers employed in the national economy, about 19 percent of medical doctors, about 19 percent of agricultural field professionals, and about 16 percent of professionals in the field of education were members of the Communist Party.[29]

This increase of Communist Party membership among professionals was brought about by the radical shift in policy on admissions and recruitment for party membership which took place in the mid- and late-1930's.[30] During that period various restrictions and discriminations against accepting intellectuals, white-collar workers, and other nonprole-

[28] *Nar Khoz—1932*, 492.

[29] These percentages were ascertained on the basis of data on Communist Party membership presented in *Partiinaya Zhizn'*, No. 20, October 1947, 73–83, and the estimated number of professionals by field for 1947.

[30] For further details, see M. Fainsod, *How Russia is Ruled*, Cambridge: Harvard University Press, 1954, esp. 225–232.

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463 666 tarian social groups into the ranks of the party were lifted, and extensive campaigns recruiting professionals and other specialists into the party were conducted. Despite this drive to mobilize the support of professionals which started shortly before the war and despite the substantial gain in the relative proportion of party members among professionals, it is surprising that in 1947, after 30 years of Communist rule in Russia, only about one-third of all professionals had been recruited into the party.

Soviet Semiprofessional Personnel and Its Occupational Composition

463 Thus far, this discussion has centered on the total number of specialists, as well as on Soviet professionals with completed higher education. Various statements made above were possible because estimates were verifiable with a sufficient degree of accuracy and reliability. Unfortunately, except for the discussion of the overall supply of semiprofessionals with completed secondary specialized education made earlier, a discussion of occupational composition and various related aspects of the semiprofessional labor force is hampered by the lack of precise data on graduations, which are essential for obtaining estimates with the desired degree of reliability. Therefore, although data on the occupational distribution of trained semiprofessionals were derived for the postwar years, they must be viewed as very rough approximations only.

Table 9 summarizes actually reported employment and estimates in regard to the composition of semiprofessionals by field.

From 1932 to 1950 the size of the Soviet semiprofessional labor force increased about 3.3-fold. Again, as in the case of professionals, the growth of semiprofessionals in the fields of industry and agriculture was disproportionately higher, and in the fields of socioeconomic services and education disproportionately lower than the rate of growth of the total semiprofessional labor force. In the health field, however, the rate of growth of semiprofessional supporting personnel (medical nursing primarily) increased almost fivefold during this period.

The 1950 composition of semiprofessionals was about as follows: Engineering technicians and other semiprofessionals in industry accounted for about one-quarter of all semiprofessionals, and their proportion was only slightly below that of semiprofessionals in the education field (some 29 percent). Semiprofessionals in health fields accounted for about 22 percent, and those in agriculture and socioeconomic services for 13 and 11 percent, respectively, of all trained semiprofessionals employed in the national economy.

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TABLE 9.- *Approximate composition of the Soviet semiprofessional labor force, 1932–50*

[Year-end employment in thousands]

Field	1932	1937	1940	1950
Semiprofessionals and technicians in industry, manufacturing, mining, transportation, and communication	132. 5	372. 3	413. 5	749. 4
Semiprofessionals in agricultural fields	58. 5	145. 5	191. 7	385. 4
Semiprofessionals in socioeconomic services and branches	195. 6	184. 6	174. 9	349. 3
Semiprofessionals in the field of education and cultural services	382. 1	524. 3	618. 9	862. 0
Semiprofessionals in health fields	135. 0	213. 3	370. 6	672. 6
Total	903. 7	1, 440. 0	1, 769. 6	3, 018. 7

Source: Actual employment reported for 193[illegible] and 1937 from tables A–2 and A–3 in the appendix to ch. VI. 1940 and 1950 e[illegible]mated employment from tables C–13 and C–14 in the appendix to ch. VI. See notes in the appendix for further details.

Finally, it should be noted that while in 1950 the ratio of all trained semiprofessionals to all professionals employed in the national economy was about 2 to 1, there was wide divergence from this ratio in individual fields.[31] In the socioeconomic service fields far greater reliance upon trained semiprofessionals was reflected in the ratio of 39 semiprofessionals to 10 professionals. In agricultural and health fields there were about 27 semiprofessionals per 10 professionals employed. The ratio of technicians and industrial semiprofessionals to engineers with higher education was only 17 to 10, and in education it was only 14 to 10. The examination of these ratios suggests that if Soviet planning norms are taken into consideration, there is a substantial deviation from the planned optimum of the utilization of semiprofessional personnel in industry in particular.

Trained Specialists and Soviet Managerial, Administrative, Technical, and Supervisory Personnel

Soviet professional and semiprofessional personnel with formal higher education and secondary specialized training represent an integral part of the bureaucratic, managerial, and administrative personnel, intellectuals, white-collar workers, technical and supervisory personnel. This large group is usually singled out and is commonly called in Soviet pronouncements by the broad and ambiguous term—"intelligentsia." Table 10 shows the composition of this group as a whole and various

[31] In order to make these statements, a comparison of the data for the estimated number of professionals (table 6 above) and semiprofessionals (table 9) was made.

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segments within it as revealed for a number of years in Soviet official pronouncements. The data presented in this table reveal the total size of fields by function or by occupation.

Although the overall size of this group can be ascertained for 1936 only, from the fragmentary information available for 1926 and 1952 it is possible to obtain valuable information about the growth of various segments within it during the last three decades. Furthermore, on the basis of the available data it is possible to consider the role which is assigned to trained manpower in the bureaucracy of the Soviet state.

The data presented in table 10 refer to various groups defined by status and occupation. For the years 1926, 1936, and 1938 the figures reported have apparently been obtained from the census of population in these years. There are several occupations (engineers and architects, agronomists, scientists, physicians) for which it can be safely assumed that the majority of persons are professionals with higher education. In 1938 the figures for engineers, agronomists, and physicians closely approximate

TABLE 10.—*Composition of Soviet managerial, administrative, technical, specialized, and supervisory personnel*

[Year-end figures in thousands]

	(a) 1926	(b) 1936	(c) 1938	(d) 1952
Administrative personnel	[2]	1,751.0	[2]	[2]
Engineers and architects [1]	32.0	250.0	305.0	2,000.0
Intermediate technical personnel	175.0	810.0	896.0	
Agronomists [1]	18.0	80.0	90.0	400.0
Other technical agricultural personnel	13.0	96.0	114.0	
Scientists [1]	14.0	80.0	93.0	[2]
Teachers (of all ranks)	348.0	969.0	1,201.0	2,000.0
Cultural and educational workers	59.0	297.0	495.0	[2]
Arts	54.0	159.0	174.0	[2]
Physicians [1]	70.0	132.0	155.0	300.0
Intermediate medical personnel	130.0	382.0	607.0	900.0
Economists and statisticians	[2]	822.0	[2]	[2]
Bookkeepers and accountants	375.0	1,617.0	1,769.0	[2]
Legal workers	[2]	46.0	[2]	[2]
Students in higher education establishments	160.0	550.0	603.0	1,400.0
Other types (including military)	[2]	1,550.0	[2]	[2]
Total	[2]	9,591.0	[2]	[2]

[1] Categories thus indicated can be assumed to be composed mainly of professionals with higher education.
[2] Figures not available.

Sources: (a), (c) *Bol'shevik*, No. 10, 1940, 22; also see *American Quarterly on the Soviet Union*, Nos. 2–3, Nov. 1940, 95. (b) *Bol'shevik*, Nos. 5–6, 1939, 102–104. (d) L. Gruilow (ed.), *Current Soviet Policies*, Ann Arbor, Mich.: 1953, 163 (Beriya speech at 19th Party Congress). In subsequent years (after fall 1952) these original figures were repeated by several dozen other Soviet sources.

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the estimated number of professionals employed in the respective fields in the national economy. If it is assumed that the majority of persons in these segments were trained professionals, it is possible to account for about 643,000 specialists, or about 80 percent of the trained professionals employed in the national economy of the U. S. S. R. in that year.

It appears that in 1936 trained professionals and semiprofessionals accounted for about one-fifth of a group which is officially defined as "Soviet intelligentsia." Unfortunately the total size of this group cannot be obtained for 1952, but on the basis of the growth in fields for which data are obtainable it appears that by 1952 the "Soviet intelligentsia" numbered about 12 to 14 million persons. If this figure is assumed to be correct, in that year trained professionals and semiprofessionals accounted probably for about one-third of this group.

From 1926 to 1952 engineers, architects, and technical personnel increased about tenfold. Agricultural field personnel experienced a 13-fold growth. The number of teachers of all ranks increased about fivefold. The number of physicians grew slightly more than fourfold. These differential rates of growth greatly resemble those which were already discussed in regard to the pattern of increases of trained professional and semiprofessional personnel.

Supply, Employment, and the Problem of Utilization of Engineers and Technicians in Soviet Industry

In the preceding parts of this chapter an attempt was made to deal with aggregates and to ascertain the growth and the size of specialized fields, primarily with reference to these aggregates. In conclusion, it is useful to bring together and to reconcile the different types of data discussed earlier and to supplement them with additional information which will be helpful in understanding the problems of employment and utilization of trained personnel in the U. S. S. R. This is particularly important in regard to the employment of engineers and technicians in Soviet industry.

It has earlier been stated that Soviet authorities distinguish, in addition to *trained* specialists, another category of professionals and semiprofessionals. This category consists of persons actually employed in the capacity of specialists although they have not had formal specialized training. Personnel of this type in Soviet industry are commonly called practicals (*praktiki*). Formally trained professionals and semiprofessionals who are employed in production, in supervisory or in managerial positions, and all "practicals" who are employed in a similar capacity in Soviet industry, manufacturing, mining, construction, transportation,

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communication, etc., are commonly designated in Soviet practice as one group, which is called engineering-technical personnel (*ITR—Inzhenerno-Tekhnicheskiye Rabotniki*).

It was indicated earlier, in table 10 above, that in 1952 the Soviet Union had about 2 million engineers, architects and intermediate technical personnel.[1] This aggregate figure represents roughly the total number of persons in the category "engineering-technical personnel" and includes by definition trained professionals and semiprofessionals and all "practicals" who are employed as specialists in all branches of Soviet industry, manufacturing, mining, construction, transportation, and communication. According to estimates of trained manpower, in 1952 the Soviet Union had about 470,000 engineers and industrial field professionals with completed higher education, and about 850,000 trained technicians with completed secondary specialized education.[32] Consequently, trained specialists, professionals and semiprofessionals accounted in that year for about 1,320,000 persons, which is about two-thirds of all "engineering-technical personnel" (about 2 million) in all branches of Soviet industry, manufacturing, mining, construction, transportation, and communication.

In the Soviet Union (as well as in the United States in many instances) the supply of engineers and technicians in industry is related to the number of production workers. Table 5 above has shown the relationship of trained manpower to the Soviet labor force of salaried workers and employees.[2] It is revealing to consider now the relationship between trained engineers, trained technicians, all engineering-technical personnel (i. e., including "practicals"), and production workers in Soviet industry. This relationship is usually expressed in terms of the number of specialists per 1,000 production workers. This ratio obviously varies from one branch of industry to another, which to some extent is a reflection of the numerous technological and economic factors affecting the demand for engineers and technicians by different branches of industry.

During the last 25 years there has been a considerable increase in the supply of engineering and technical personnel in relation to the number of production workers employed in Soviet industry.[33] Table 11 summarizes the data which reveal the change in the ratio of engineering-technical personnel per 1,000 production workers from 1930 to 1950.

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[32] Tables C–12 and C–15 in the appendix to ch. VI. The figures on trained engineers and technicians in the text are rounded estimates of figures presented in the appendix.

[33] The concept "Soviet industry" includes all mining, extracting, and processing industries, all types of manufacturing. It excludes construction, transportation, and communication.

1. [Cf. cat. 116, p. 246 -- Analyst]
2. [Cf. cat. 116, p. 235 -- Analyst]

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TABLE 11.—*The relationship of engineering-technical personnel to production workers in all branches of Soviet industry, 1930–50*

Ratio per 1,000 production workers

Year end	*Trained engineers with completed higher education*	*Trained technicians with secondary specialized education*	*Practicals*	*Engineering-technical personnel*
1930 actual	7.0	8.0	20.5	35.5
1936 actual	13.0	17.0	40	70.5
1940 actual	19.7	23.3	67.0	110.0
1950 plan	28.0	60.0	30.0	118.0
1950 actual	28.0	37.0	65.0	130.0

Source: All years, except 1950 Plan, from I. Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR* (Training of Specialists for Industry in the U. S. S. R.), Moscow, 1954, 79–80. 1950 Plan from *VT*, No. 4, 1948, 16.

It should be noted first that, on the basis of the data presented in table 11, additional verification of the number of trained engineers and technicians employed in Soviet industry can be made. In 1950 there were about 28 trained engineers and about 37 trained technicians per 1,000 production workers in Soviet industry. Although the actual number of production workers alone in Soviet industry in 1950 cannot be obtained, if total employment in Soviet industry (i. e., about 14,500,000) is considered, it appears that the upper limit estimate of the actual number of trained engineers employed in Soviet industry (i. e., excluding transportation, communication, and construction) in 1950 was about 400,000 and of trained technicians was about 540,000. Consequently, Soviet industry in that year accounted for about 80 percent of all trained engineers employed in the Soviet Union and for about 65 percent of trained technicians. These percentages are not radically different from those which prevailed on the eve of the Second World War (1940), when Soviet industry accounted also for about 80 percent of all trained engineers employed in the Soviet Union. Construction, transportation, and communication engineers apparently accounted for the residual number of trained engineers and technicians.

From the data presented in table 11, it is evident that for Soviet industry as a whole the number of trained engineers and trained technicians per 1,000 production workers over the 20-year period 1930 to 1950 increased more than fourfold. Thus over these two decades the rate of growth of engineering and technical personnel was considerably greater than the expansion in the force of production workers.

The data also reveal that by 1950 trained engineers and technicians accounted for about one-half of all engineering-technical personnel, which, as we already mentioned, also includes by definition those persons performing supervisory and managerial functions. It should be noted, however, that in 1950 "practicals" still continued to account for

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about one-half of all engineering-technical personnel. If planned and actually attained ratios for 1950 are compared, it becomes evident that although the planned ratio of trained engineers per 1,000 production workers was realized, the utilization of "practicals" continued to be extensive, particularly because of the deficient supply of trained technicians. The utilization of "practicals" in place of trained technicians, particularly in production, appears to be quite frequent.[34]

It was revealed in 1948 that, according to the plan for 1950, the variation of the number of engineers and technicians per 1,000 production workers in industry was considerable. Table 12 presents these data.

TABLE 12.—*Planned relationship of engineering-technical personnel to production workers in different industries in 1950*

Branch of Soviet industry	*Ratio per 1,000 production workers*			
	Trained engineers with completed higher education	*Trained technicians with secondary specialized education*	*Practicals*	*Total engineering technical personnel*
Electric power stations	50	115	20	185
All types of machine building	45	90	20	155
Petroleum industry	40	85	25	150
Chemical industry	35	80	25	140
Metallurgical industry	25	55	35	115
Food industry	20	55	35	110
Coal and peat industry	20	40	45	105
Construction materials industry	15	40	35	90
Textile and light industry	15	35	30	80
In all branches	28	60	30	118

Source: *VVSh*, No. 4, 1948, 15 (Lyasnikov's article).

The data presented in table 12 reveal that there is a considerably greater reliance placed upon engineers and technicians with formal training in those branches of Soviet industry which deal with machine building and other branches of heavy industry than in light industry. The existence of this pattern in the utilization of trained engineers and technicians is confirmed further by a statement that in 1950 "in certain branches of machine building the number of all engineering-technical personnel per 1,000 production workers exceeded 200, of whom more than one-half were trained engineers." [35]

[34] In this connection, it should be recalled (see ch. III for details) that in recent years Soviet authorities have begun to emphasize strongly the need for increasing secondary semiprofessional training. That there is extensive substitution of "practicals" for trained technicians, as revealed by employment data, is responsible to a great extent for this drive to expand the training of technicians.

[35] I. Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR* (Training of Specialists for Industry in the U. S. S. R.), Moscow, 1954, 17.

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It is apparent, therefore, that in 1950 the variation of the ratio of engineering-technical personnel per 1,000 production workers in different branches of Soviet industry was quite substantial. There was, furthermore, in Soviet industry a wide variation in the proportion of trained engineers and technicians among all engineering-technical personnel employed in a given branch. While there are some branches of Soviet industry where the ratio of engineering-technical personnel, and particularly of trained engineers to production workers, is quite low (light industry), there are other branches (probably the armaments-producing branches of machine building, aircraft manufacturing, and the like) where there is enormous concentration of engineering personnel. This pattern of wide differentials in the utilization of engineering-technical personnel throughout industry is, to a large extent, a reflection of the priorities given to certain branches of heavy industry in the Soviet economy.

For 1940 the actual distribution of trained engineers employed in Soviet industry can be ascertained. Table 13 presents these data.

TABLE 13.—*Approximate distribution, by specialty, of engineers with completed higher education employed in Soviet industry in 1940*

Engineering specialty	*Distribution in percent*
Mechanical	34
Power and electrical	9
Mining	8
Metallurgical	6
Chemical technology	11
Food processing	4
Textile and light industry	4
Engineering economics	11
Other undistributed	13
Total	100

Source: Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR*, 65. This distribution refers to about 215,000 engineers.

The data in table 13 reveal that in 1940 the largest proportion of trained engineers were employed as mechanical engineers (i. e., primarily in machine building). Unfortunately the distribution of trained engineers by specialty employed in Soviet industry is not available for recent years. However, judging from the distribution of engineering students by specialty in recent years (see ch. IV), we note that there has not been any significant change in the trend of training by specialty, and consequently the distribution of trained engineers by specialty may not have altered markedly from that presented in table 13.

It is important to note that a substantial proportion of engineering-technical personnel employed in Soviet industry are called upon to perform managerial functions. The latest year for which a comprehensive

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463 816 distribution of trained specialists employed in Soviet industry and construction was found is 1940. Table 14 presents these data.

TABLE 14.—*Distribution of specialists with completed higher education, by type of employment, in Soviet industry and construction in 1940*

Type of employment	*Distribution in percent*
Administration and management of commissariats (ministries) and chief administrations	7.4
Administration and management of industrial trusts	9.1
Regional and local administrations of industrial and construction enterprises	5.2
Industrial enterprises	48.1
Construction enterprises	13.0
Scientific, industrial research and development	7.5
Educational establishments training specialists and industrial labor	9.7
Total	100.0

Source: Lyasnikov, *Podgotovka spetsialistov promyshlennosti SSSR*, 65. This distribution refers to about 240,000 specialists, primarily engineers as well as some other specialists with completed higher education employed in industry (about 215,000) and construction (about 25,000) in 1940.

The data in table 14 reveal that about 22 percent of trained specialists in 1940 were employed in organizations directly concerned with management, technical and economic planning in industry and construction. About 61 percent were employed in industrial and construction enterprises, and about 17 percent were engaged in industrial research and development and training establishments.

The data presented in table 14 indicate the tendency for Soviet engineers to be employed in the upper levels of industrial organization. Many engineers employed in these positions are undoubtedly called upon to perform administrative or managerial functions. However, it is erroneous to assume that *all* those who are employed on a ministry or a trust level do not perform any engineering functions. Industrial research and development, design of new products, and a large amount of engineering and technological planning are concentrated in offices and bureaus of Soviet economic ministries and trusts. This setup is responsible in part for the employment of a substantial proportion of engineers in the upper levels of industrial organization.

Although the data in table 14 reveal that some 60 percent of professionals (primarily engineers) in Soviet industry and construction are employed in plants and enterprises, it is evident from numerous Soviet press reports and pronouncements, both in the past and in recent years, that the proportion of trained engineers employed in production directly is quite low. In 1940 in Soviet industry only 31 percent of all engineers were employed directly in production.[20] This fact is consistent with the previous observation that on the lower levels of industrial organi-

[20] Ibid., 15.

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zation it is common for engineering and technical functions to be performed by "practicals." Although it has recently (i. e., 1954) been stated that a further increase in the number of engineers employed in managerial positions is unlikely[87] and that most new engineering graduates will be assigned to jobs in industrial research or in production directly, in the past the trend prevailed of using engineers extensively for technical and economic management.

In this section an attempt has been made in a very brief and cursory fashion to discuss the problem of the utilization of engineering-technical manpower in Soviet industry. It is apparent that in addition to trained engineers and technicians the Soviet Union makes extensive use of personnel without formal specialized education ("practicals"). In the past a trend prevailed by which a large number of "practicals" were used in production because a considerable proportion of trained engineers were engaged in industrial management and the supply of trained technicians was insufficient to replace all "practicals." Furthermore, the distribution of trained engineering manpower in relation to production workers throughout industry is very uneven. There are some branches of industry where an enormous concentration of engineering manpower was achieved because of the deliberate intent of Soviet planners to promote technological development of certain branches of industry.

In conclusion, it should be noted that the total number of trained engineers in the Soviet Union and the ratio of trained engineers to the number of production workers employed in industry in the Soviet Union appear in recent years to have been about the same or even slightly higher than in the United States. A consideration of various reservations regarding the effective utilization of engineers in the Soviet Union is superseded, however, by the fact that in recent years the annual rate of training engineers in the Soviet Union has been substantially higher than that in the United States.

Finally, it should always be kept in mind that the radical differences between an allocation economy and a free-enterprise economy are significant factors which exercise influence upon the differences in demand for engineers in the two countries. These differences, however, cannot be ascertained without a detailed and exhaustive investigation into the state of industrial technology and scientific development in any given branch of industry or in any given field of science in the two countries.

The Number of Advanced-Degree Holders and the Supply of Scientists in the U. S. S. R.

The estimates of trained manpower in the Soviet Union presented in the preceding parts of this chapter have dealt with professionals and semi-

[87] Ibid., 68.

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professionals. It is important now to ascertain the number of advanced-degree holders in the Soviet Union.

An elaborate procedure may be used to make postwar estimates on the number of advanced degree holders in the U. S. S. R. However, since there is a radical distinction in the significance of advanced degrees in the U. S. S. R. from those granted elsewhere,[38] a somewhat more simplified approach can be adopted. At the end of 1946 there were about 26,000 candidate-degree holders and 6,000 doctor-degree holders in the Soviet Union.[39] Using this as a base, we may estimate that by the end of 1953 there were about 57,000 advanced-degree holders in all fields. There were some 47,000 with candidate degrees and some 10,000 with doctor degrees.[40] The composition of these advanced-degree holders by field of science can be ascertained only on the basis of a projection of past trends, as was already done in chapter V. It may be recalled that these trends reveal that the great proportion (almost 75 percent) of all advanced degrees were awarded in the field of the natural and physical sciences.

The majority of these advanced-degree holders among Soviet professionals were engaged either in teaching in Soviet higher educational establishments or in scientific research. In 1952 the teaching staffs of Soviet higher educational establishments numbered about 90,000. A large proportion of these teachers were engaged also in pure or applied research. In 1952 the Soviet Union also had about 68,000 research scientists employed in institutions other than higher educational establishments.[41] Consequently, assuming that the majority of academic rank appointees in the U. S. S. R. can be regarded also as scientists, we may say that the Soviet Union in 1952 had about 160,000 scientists. This number of research scientists and academic rank appointees represents approximately a four-fold increase over the number in 1930. Finally, it is apparent that by 1952 more than one-third of all Soviet scientists held advanced degrees.

Summary: A Brief Comparison of the Supply of Professional Manpower in the U. S. S. R. and the United States

On various occasions throughout this volume we have made reference to professional education in the United States, and it therefore seems fitting now to make some concluding comparisons, in summary fashion,

[38] Concerning this distinction, see ch. V.
[39] *VVSh*, No. 11, 1947, 30.
[40] Figures for 1953 are obtained as estimates at 3 percent average annual losses and data on the award of advanced degrees presented in tables A-2 and A-4 in the appendix to ch. V.
[41] This estimate was made on the basis of the pronouncements in *Bol'shevik*, No. 6, 1941, 17; *Pravda*, October 6, 1952.

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concerning the availability of trained professional manpower in the two countries.[42] Higher education is undoubtedly more accessible in the United States than in the Soviet Union. In 1953 the United States had about 5,800,000 persons with completed higher education (college or first professional degree). The Soviet Union had roughly 2 million persons with completed higher education. However, *in applied scientific fields—such as engineering, agriculture, medicine—the number of Soviet professionals with completed higher education was about equal to or somewhat above the number of trained persons in these occupations in the United States.* In 1953 the Soviet Union had about 500,000 trained professional engineers, while in the United States there were about 530,000 trained engineers. The Soviet Union had about 280,000 physicians (and only 20,000 dentists), while in the United States there were about 195,000 physicians (and about 90,000 dentists). The United States had about 150,000 trained agricultural specialists, while the U. S. S. R. had about 170,000.

Of course, in order to assign meaning to these magnitudes, they must be viewed in relation to the size of the population and the nonagricultural labor force. While the Soviet population is about one-quarter larger than that of the United States, the Soviet nonagricultural labor force is still about one-third smaller than that of the United States. Thus, the proportionate share of trained professionals employed in the Soviet Union is lower with respect to the population at large, but obviously somewhat higher in relation to the nonagricultural labor force.

To sum up the other fields of occupational composition of the Soviet professional labor force, although the number of teachers of all ranks and at all levels of the educational system is larger in the Soviet Union than in the United States, the relative share of persons with completed higher education among all teachers is substantially smaller in the U. S. S. R. While the Soviet Union in 1952 employed about 2 million teachers, the relative share of those with completed higher education was only about 37 percent (750,000); in the United States in 1953 there were some 1,400,000 teachers, among whom about 70 percent had higher education. The number of teachers in Soviet higher educational establishments was about one-half of that in the United States. In 1952 the Soviet Union had about 90,000 teachers in higher educational establishments, while the United States, in 1953, had about 210,000.

Finally, while in the United States there was a large supply of trained professionals in various fields of business, law, commerce, the humanities, and various social sciences, etc., in the U. S. S. R. there were very few indeed. The few Soviet professionals who did have training in the humanities or the social sciences were employed in teaching fields. There were, for example, less than 100,000 professionals in the U. S. S. R. with

[42] United States data which follow are taken from Wolfle, op cit., passim.

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464 training in the socioeconomic sciences, as compared with over 1 million in the United States.

463 Analysis of the Soviet professional labor force by occupational field, as well as certain comparisons just made with professional personnel in the United States, suggest that Soviet higher education is still oriented primarily towards the training of specialists in scientific-technical and applied fields (engineering, agriculture, medicine), and has succeeded over the past two and a half decades in reaching a level of close equivalence, and occasionally of numerical supremacy, to that in the United States. Furthermore, Soviet secondary semiprofessional education has provided a large supply of trained supporting personnel, which in the United States is obtained mainly through the automatic process of on-the-job training or through the underutilization of trained college graduates.

As far as the supply and utilization of trained professional manpower is concerned, the Soviet Union over the last 25 years has made these substantial gains, despite the disrupting effects caused by forced collectivization, purges, and war, as well as the radical experimentation which took place in the field of education in the late 1920's. The growth of professional manpower has been facilitated by the extensive utilization of women (50 percent of all professionals). The expansion of this manpower, despite all ideological and political preconceptions advanced by the Communist dictatorship, has proceeded from among the ranks of descendants of the intelligentsia classes. Despite severe pressures for conformity and despite continuous campaigns to recruit professionals into the ranks of the Communist Party, especially since 1935, only about one-third of Soviet professionals have formally embraced this allegiance.

Increases in the Soviet professional labor force were sustained not only by the ability of Soviet higher educational establishments to turn out graduates, but also through the preferential treatment of specialists. However, in spite of such treatment, the net losses among Soviet trained professionals during the last 25 years have been substantially greater than in the United States. Nevertheless, at the present time, the annual losses are substantially smaller than in this country. While annual additions to trained personnel in all fields in the Soviet Union are still smaller than those in the United States, additions to specialized personnel in scientific-technical and applied fields are greater than in the United States and will, in all probability, continue to be. While Soviet official sources continue to complain of shortages of trained professional personnel, the drive to increase Soviet professional manpower at a rate greater than that for the labor force itself still continues to be the long-run objective of Soviet planners in their desire to improve already existing and to master new industrial technology. The success of this undertaking is still regarded as

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being largely dependent upon the future additions of formally trained specialists.

Throughout this volume many reservations have been made concerning the training, supply, and utilization of professional personnel in the U. S. S. R. Despite these reservations, we must bear in mind that during the last two and a half decades the Soviet Union has made enormous strides towards building up its specialized manpower resources. As a result of its efforts, it has reached a position of close equivalence with or even slight numerical supremacy over the United States as far as the supply of trained manpower in specialized professional fields is concerned. The Soviet effort continues. Our own policies in the field of education and in regard to specialized manpower resources will decide whether within the next decade or so the scales will be tipped off balance.

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Table C-9 Soviet professional labor force, by field, 1940.

Table C-10 Soviet professional labor force, by field, 1950.

Appendix C-11 Checks upon estimates of the size of the Soviet professional labor force, by field, in 1940 and 1950.

Table C-12 Soviet professional labor force, by field, 1950-54.

Table C-13 Soviet semiprofessional labor force, by field, 1940.

Table C-14 Soviet semiprofessional labor force, by field, 1950.

Table C-15 Soviet semiprofessional labor force, by field, 1950-54.

GENERAL NOTE ON ESTIMATES OF THE SIZE AND OCCUPATIONAL COMPOSITION OF SOVIET TRAINED MANPOWER AND ORGANIZATION OF THE APPENDIX TO CHAPTER VI

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This appendix consists of various tables which present employment data and summarize the number of graduates by year and period, and finally presents estimates on the basis of both types (employment and graduates) of data. Finally, various checks are employed to ascertain the reliability of estimates and their relation to various official pronouncements.

Throughout this appendix the term "professional" is used to designate persons with completed higher education, and the term "semiprofessional" is used to designate technicum graduates; i. e., persons with completed secondary specialised education.

Tables A-1, A-2, A-3, A-4, A-5, A-6, and A-7 summarize various data concerning the employment of trained specialists. Table B-1 and the supplement to it present data about graduates. Finally, all "C" tables represent various estimates of trained personnel and checks upon these estimates. The technique of each estimate is explained in the notes to each "C" (or set of "C") tables.

It should be borne in mind that estimates presented in this appendix are rough approximations. When Soviet sources state, for example, that there were "about 6 million" trained specialists employed in the national economy of the U. S. S. R. in 1954, it is indeed a very rough figure. When Soviet sources report an increase of 100 percent, it could obviously mean at least a variation of 1 percent from 108.5 to 109.5 percent. After making use of this type of information, which admittedly lacks precision, it is obvious that various estimates do and should differ one from another. The usefulness of these estimates consists not in their precision as absolutely exact magnitudes but in the fact that they are consistent and that they do agree as rough approximations.

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TABLE A-1.—*Composition of Soviet trained manpower, by employment, year end 1928*

[Number employed in thousands]

	Professional	*Semiprofessional*	*Professional and semiprofessional combined*
I. All production, administrative, and exchange branches of national economy	90.0	56.0	146.0
1. Industry, construction, transportation, communication	----	----	----
a. Production engineers and technicians only	17.9	19.9	37.8
2. Agriculture	----	----	----
a. Agricultural specialists without administrative functions	9.3	8.5	17.8
3. Administrative, government, and exchange	62.8	27.6	90.4
a. Socioeconomic segment only	----	----	----
II. Educational-cultural	[a](130.0)	----	----
1. Primary- and secondary-school teachers	26.0	185.5	211.5
2. Higher education teachers	[b](10.4)	----	----
III. Health	63.5	72.0	135.5
1. Medical personnel only	----	----	----
Total	[c](283.5)	----	----

[a] In this segment in 1932 there were about 155,000 (see table B-1 below) persons. Since about 30,000 graduated during the 5-year period, there were about 130,000 "educational-cultural" specialists in 1928.
[b] *Plan Kadrov—1930*, p. 104.
[c] By addition of I, II, III, where II is an estimate.

Sources and notes

All figures except those in parentheses from *Itogi Pervogo PYP*, pp. 215–219, 275. The source does not give full coverage of all trained specialists employed. Productive branches in engineering and in agriculture are singled out, but administrative employment of trained specialists is not given by segment.

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463 TABLE A-2.—*Composition of Soviet trained manpower, by employment, year end 1932*

[Number employed in thousands]

	Professional	*Semi-professional*	*Professional and semi-professional combined*
I. All production, administrative, and exchange branches of national economy	229.2	386.6	615.8
1. Industry, construction, transportation, communication	------	------	------
a. Production engineers and technicians only	73.6	132.5	206.1
2. Agriculture	------	------	------
a. Agricultural specialists without administrative functions	36.3	58.5	94.8
3. Administrative, government, and exchange	119.3	195.6	314.9
a. Socioeconomic segment only	------	------	------
II. Educational-cultural	156.9	382.1	539.0
1. Primary- and secondary-school teachers	43.2	344.0	387.2
2. Higher education teachers	------	------	------
III. Health	76.3	135.0	211.3
1. Medical personnel only	------	------	------
Total (I, II, III)	462.4	903.7	1,366.1

Sources and notes

Vtoroi PYP, pp. 512–513. This table is compiled from Gosplan reporting with full coverage. Administrative personnel (I–3) is singled out from all productive branches of the national economy and is not distributed by field.

The total of 1,366,000 trained specialists constitutes about 50 percent of all specialists employed in the national economy (2,737,000).

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TABLE A-3.—*Composition of Soviet trained manpower, by employment, year end 1937* 463

[Number employed in thousands]

	Professional	*Semi-professional*	*Professional and semi-professional combined*
I. All production, administrative, and exchange branches of national economy	411.9	702.4	1,114.3
1. Industry, construction, transportation, communication	262.2	372.3	634.5
a. Production engineers and technicians only	.....	.....	.....
2. Agriculture	89.5	145.5	235.0
a. Agricultural specialists without administrative functions	.....	.....	.....
3. Administrative, government, and exchange	.....	.....	.....
a. Socioeconomic segment only	60.2	184.6	244.8
II. Educational-cultural	231.0	524.3	755.3
1. Primary- and secondary-school teachers	.....	.....	.....
2. Higher education teachers	.....	.....	.....
III. Health	105.9	213.3	319.2
1. Medical personnel only	.....	.....	.....
Total	748.8	1,440.0	2,188.8

Sources and notes

Tretii PYP, p. 238. This is again Gosplan reporting of so-called full coverage of number of specialists employed. Administrative personnel is reported within a given segment and is not singled out as one group for all productive branches of the national economy. No indication is given as to the number of non-trained specialists employed in addition to trained personnel.

TABLE A-4.—*Postwar pronouncements about the number of trained specialists employed in the national economy of the U. S. S. R., 1946–54*

[Year-end references]

Year	*Reference of increase*	*Source*
1946	"Somewhat over 3 million"	*VVSh*, Nos. 11–12, 1946, p. 1 (Kaftanov).
1948	155 percent of 1940	*Nar Khoz-SSR*, No. 3, p. 413 (Itogi 1948).
1949	168 percent of 1940	*Nar Khoz-SSR*, No. 3, p. 445 (Itogi 1949).
1950	109 percent of 1949	*Nar Khoz-SSR*, No. 4, p. 423 (Itogi 1950).
1950	184 percent of 1940	*Voprosy Ekonomiki*, No. 5, 1951, p. 13 (Itogi 1946–50).
1951	108 percent of 1950	*Voprosy Ekonomiki*, No. 2, 1952, p. 11 (Itogi 1951).
1951	"Somewhat over 5 million"	*Bol'shevik*, No. 7, 1952, p. 28 (Kuusin article).
1952	108 percent of 1951	*Pravda* (Malenkov), Oct. 6, 1952.
1952 (fall)	"About 5,500,000" or "about 220 percent of 1940"	*Pravda*, Jan. 23, 1953 (Itogi 1952).
1953	108 percent of 1952	*Pravda*, Jan. 31, 1954 (Itogi 1953).
1953	127 percent of 1940	*Pravda*, Mar. 13, 1954 (Bulganov speech).
1954	109 percent of 1949	*Pravda*, Jan. 21, 1955 (Itogi 1954).

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NOTES TO TABLE A–4

These pronouncements have to be elaborated upon and worked out in numerical terms. Then they may be used for checking purposes with various estimates.

In the first place, by using 1952 or 1951 as a base, we can obtain several rough approximations as to the size of the professional and semiprofessional labor force for various years. On the basis of the data stated in the table above, the following derivations can be made:

1. 1952 (fall) total size was about 5,500,000, which was 2.2 times larger than in 1940, making 1940 about 2,500,000.

2. 1952 total was about 5,500,000, which was 108 percent of 1951, and therefore 1951 total was 5,093,000; 1951 total was 108 percent of 1950 or 4,715,000.

(*a*) 1950 was 184 percent of 1940; consequently 1940 was 2,562,000.

(*b*) 1950 total was 109 percent of 1949 and therefore 1949 total was 4,325,000; 1949 total was 168 percent of 1940, making 1940 total 2,574,000.

3. Total size in 1951 was about 5 million, which was 108 percent of 1950 and 1950 therefore was about 4,630,000.

(*a*) 1950 total was 184 percent of 1940; consequently 1940 was 2,516,000.

(*b*) 1950 total was 109 percent of 1949 and therefore 1949 total was 4,248,000; 1949 total was 168 percent of 1940, giving 2,528,000 for 1940.

4. 1951 total was about 5 million, which was 108 percent of 1950, thus 1950 was about 4,630,000; 1950 total was 109 percent of 1949, and therefore 1949 total was 4,248,000. 1953 total was 137 percent of 1949, and therefore 1953 total was 5,820,000.

5. 1952 total was about 5.5 million, 1953 total was 108 percent of 1952 or 5,940,000; 1953 total was 137 percent of 1949 total, and therefore 1949 total was 4,336,000. 1949 total is 168 percent of 1940, and consequently 1940 total is about 2,580,000.

6. 1951 total was about 5 million; 1952 total was 108 percent of 1951 total, making 1952 total 5.4 million; 1953 total was 108 percent of 1952 total, or 5,832,000; 1953 total was 137 percent of 1949 total, and therefore 1949 total was 4,257,000. 1949 total is 168 percent of 1940, making 1940 total 2,534,000.

7. 1948 total was 155 percent of 1940; consequently—

(*a*) Assuming 1940 as 2,500,000, 1948 total was 3,875,000.

(*b*) Assuming 1940 as 2,550,000, 1948 total was 3,952,000.

8. 1954 total was 109 percent of 1953; consequently assuming 1953 total as about 5,820,000, we obtain 1954 total of 6,345,000.

All these computations tend to show that, although none of the figures coincide for a given year and they all show differences depending on the way in which they were derived, nevertheless, from official pronouncements rough approximations can be obtained about the size of the Soviet professional and semiprofessional labor force combined. The variation is obviously due to the rounding of both base figures for 1952 and 1951 and reported percentage increases. Despite this, the figures for the following years can be accepted as rough approximations:

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TABLE B–1.—*Summary of graduations of Soviet professionals and semiprofessionals, 1928–54*

[In thousands]

	1928	1st 5-Year Plan					2d 5-Year Plan						3d 5-Year Plan	
		1929	1930	1931	1932	1929–1932	1933	1934	1935	1936	1937	1933–1937	1938	1939
Graduations of professionals from higher educational establishments:														
1. Engineering	5.9	11.0	20.8	18.8	17.1	67.7	7.0	18.9	37.2	33.8	34.6	134.4	31.3	28.4
2. Agriculture	6.4	7.0	6.7	6.3	5.4	30.6	6.8	6.3	8.6	10.4	11.3	41.6	10.2	9.7
3. Socioeconomic	3.0	4.8	4.8	5.0	3.3	17.9	3.5	2.0	5.0	6.4	5.0	21.4	5.9	6.9
4. Educational	5.3	5.7	7.2	11.6	10.1	34.6	10.5	7.9	12.6	21.6	21.7	84.3	27.9	20.6
5. Health	6.3	4.0	4.4	6.5	4.3	19.2	4.0	2.0	7.6	9.3	12.8	36.1	12.9	9.7
6. Total (1–5)	26.7	32.5	43.9	30.4	42.2	170.0	30.3	38.1	71.0	83.4	84.9	317.7	88.2	75.3
7. C. P. schools	—	—	—	—	—	—	4.3	11.1	13.7	14.3	9.9	52.3	5.6	N
8. Correspondence-extension	N	—	—	—	—	—	N	N	N	N	N	N	—	—
9. Total (6–8)	26.7	32.5	43.9	30.4	42.2	170.0	34.6	49.2	83.7	97.6	104.8	369.9	103.8	75.3
Graduations of semiprofessionals from secondary specialized schools:														
10. Engineering	5.8	8.3	14.0	20.6	48.7	96.6	32.6	26.7	43.4	46.9	37.6	213.3	44.1	(35.2)
11. Agriculture	4.4	6.1	6.9	17.8	26.2	56.0	25.2	14.2	14.5	17.5	23.0	94.4	26.8	(25.7)
12. Socioeconomic	1.2	2.5	3.0	3.8	5.2	14.5	7.2	6.0	6.5	7.3	7.8	33.7	7.3	(7.1)
13. Educational	11.3	16.1	26.3	22.5	18.7	83.5	33.3	26.5	31.1	37.6	49.1	179.5	37.2	(37.3)
14. Health	4.8	4.9	9.8	10.5	13.9	37.6	14.8	11.0	14.7	21.6	38.4	100.3	43.8	(2.3)
15. Total (10–14)	26.5	37.9	61.4	94.2	107.7	391.2	123.7	97.2	112.2	134.9	155.9	623.0	201.2	(38.6)
16. Correspondence-extension	N	—	—	—	—	—	N	N	N	N	N	N	—	—
17. Total (15–16)	26.5	37.9	61.4	94.2	107.7	391.2	123.7	97.2	112.2	134.9	155.9	623.0	201.2	(38.6)
Total of professional and semiprofessional graduates:														
18. Grand total (9, 17)	57.2	70.4	105.3	124.6	149.9	561.2	158.3	146.4	195.9	232.5	260.7	992.9	305.0	91.9

See footnotes at end of table.

TABLE B–1.—*Summary of graduations of Soviet professionals and semiprofessionals, 1928–54*—Continued

	3d 5-Year Plan		War years						4th 5-Year Plan		5th 5-Year Plan			
	1940	1938–1940	1941	1942	1943	1944	1945	1941–1945	1946–50 total	1946–50 annual average	1951	1952	1953	1954
Graduations of professionals from higher educational establishments:														
1. Engineering	29.3	89.0	27.5	13.4	9.7	9.3	9.2	69.1	(160.3)	(32.0)	30.0	30.0	40.0	53.0
2. Agricultural	10.1	31.0	8.0	6.2	1.9	2.3	2.7	21.1	(50.8)	(10.1)	12.0	15.0	17.0	18.0
3. Socioeconomic	4.8	16.6	3.9	2.7	1.0	1.1	1.4	10.1	(34.6)	(6.9)	(11.0)	(13.0)	[12.0]	(8.0)
4. Educational	40.6	118.1	47.6	25.4	5.9	15.2	30.1	124.2	(298.0)	(59.6)	80.0	90.0	70.0	70.0
5. Health	17.4	44.0	17.7	21.2	9.3	7.8	6.8	62.8	(108.3)	(21.7)	30.0	(32.0)	[21.0]	24.0
6. Total (1–5)	102.2	298.7	104.7	68.9	27.8	35.7	50.2	287.3	652.0	(130.3)	(153.0)	180.0	[160.0]	173.0
7. C. P. schools	N	5.6	N	N	N	N	N	N	N	N	N	N	N	N
8. Correspondence-extension	—	—	—	—	—	—	—	—	—	—	(48.0)	41.0	[40.0]	57.0
9. Total (6–8)	102.2	304.3	104.7	68.9	27.8	35.7	50.4	287.3	652.0	(130.3)	201.0	221.0	200.0	230.0
Graduations of semiprofessionals from secondary specialized schools:														
10. Engineering	(81.7)	(112.0)	—	—	—	—	—	—	(337.0)	(67.4)	—	—	—	—
11. Agricultural	(23.5)	(78.0)	—	—	—	—	—	—	(193.0)	(38.6)	—	—	—	—
12. Socioeconomic	(7.1)	(21.5)	—	—	—	—	—	—	(198.0)	(39.6)	—	—	—	—
13. Educational	(74.2)	(198.7)	—	—	—	—	—	—	(289.0)	(57.8)	—	—	—	—
14. Health	(79.4)	(215.5)	—	—	—	—	—	—	(261.0)	(52.2)	—	—	—	—
15. Total (10–14)	(215.9)	(625.7)	• 158.0	• 182.0		• 193.0		• 533.0	1,278.0	(255.6)	—	—	—	—
16. Correspondence-extension	—	—	—	—		—		—	—	—	—	—	—	—
17. Total (15–16)	(215.9)	(625.7)	158.0	182.0		193.0		533.0	1,278.0	(255.6)	262.0	[250.0]	300.0	350.0
Total of professional and semiprofessional graduates:														
18. Grand total (9, 17)	318.1	930.0	263.0	—	—	—	—	820.3	1,930.0	(385.9)	463.0	[471.0]	500.0	550.0

N—None or negligible. ( ) Estimated figures. [ ] Figures derived by interpolation. (—) Figures not available. • See sources and notes to table B–1.

SOURCES AND NOTES TO TABLE B–1

All figures without footnotes are from tables A–1, A–2, A–3 of the appendix to chapter III and from tables A–1 and A–2 of the appendix to chapter IV. The totals for the periods are the sums of individual years. Row 18 (grand total) is obtained by addition of rows 9 and 17. Figures in parentheses are estimates derived in appendices to chapters III and IV. Figures in brackets are interpolations. The following supplement to this table gives the derivation of figures for technicum graduates during the war years which are indicated by footnote *a* in table B–1.

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SUPPLEMENT TO TABLE B–1.—*Total number of graduates from higher educational establishments and secondary semiprofessional training institutions reported for certain periods*

[All figures rounded in thousands]

Period	(A) Higher education graduates in all fields	(B) Secondary semiprofessional graduates in all fields
1. 1928	29	29.
2. 1929–32	170	291.
3. 1933–37	370	623.
4. 1938–45	590	1,150.
5. 1928–37	567	943.
6. 1929–37	540	914.
7. 1928–45	1,159	2,099.
8. 1929–45	Over 1,100	----------
9. 1942–45	183	375.
10. 1928–43	---------	Over 1,900.
11. 1941–43	---------	340.
12. 1946–50	652	1,278.

Sources and notes

1, 2, 3A, B.—*Kul't Stroi—1940*, p. 112. Also 2A, 3A in *VVSh*, No. 5–6, 1946, p. 1. All totals agree roughly with figures given for given periods in table B–1.

4A.—*VVSh*, No. 4, 1948, p. 12.

4B.—*VVSh*, No. 4, 1948, p. 12. There is an obvious error in the figure given by this source. It states that technicum graduates (1938–45) were about 1,050,000. A check with all other figures reveals that it should read "about 1,150,000."

5A.—*BSE-SSSR*, 1947, col. 1235.

5B.—Ibid., col. 1231.

6A, B.—*VVSh*, No. 4, 1948, p. 12.

7A, B.—*BSE-SSSR*, 1947, col. 1143.

8A.—*VVSh*, Nos. 5–6, 1946, p. 1.

9A.—Idem.

9B.—*BSE-SSSR*, 1947, col. 1231.

10, 11B.—Movshovich (compiler), *Tekhnikumy . . .*, 1945, p. 17.

12A, B.—*Pravda*, April 17, 1951 (Itogi 1946–50).

NOTE.—As far as the aggregate number of graduates from higher educational establishments is concerned, there is close correspondence if figures for shorter periods are added together to obtain data for longer periods. There are minor discrepancies of several thousand due to rounding. The same applies to technicum graduates, where, however, the discrepancies are somewhat larger and run up to 10,000.

On the basis of the number of technicum graduates reported for given periods, the number of graduates during the war can be ascertained. This is done as follows: 1942–45 graduates are given (9B) as 375,000. 1938–45 graduates were (4B) 1,150,000. Therefore, 1938–41 graduates would be about 775,000. At the same time, 1928–43 graduates (10B) were "over 1,900,000." 1941–43 graduates (11B) were 340,000, consequently 1928–40 graduates were 1,560,000. Subtracting (6B) 943,000 for 1928–37 graduates, we obtain about 617,000 for 1938–40, or about 10,000 lower than the figure for 1938–40 in table B–1, which serves as a check. Thus 1941 graduates were (775,000 [1938–41] minus 617,000 [1938–40]) 158,000, or somewhat above this figure. 1942–43 graduates were about (340,000 [1941–43] minus 158,000 [1941]) 182,000. Finally, 1944–45 graduates were about (375,000 [1942–45] minus 182,000 [1942–43]) 193,000. To sum up:

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1941 graduates	About 158,000
1942, 1945 graduates	About 182,000
1944, 1945 graduates	About 193,000
1941–45 total	533,000

These figures are introduced into table B–1, row 15, for given years and footnoted as *.

The problem of distributing these graduates by field is a difficult one. The only justifiable assumption is the projection of the 1938–40 trend into the war period. This is done as follows:

Semiprofessionals by field	*1938–40 graduates (thousands)*	*Distribution in percent*	*Hypothetical distribution of 1940–45 graduates by field (thousands)*
Engineering	112	17.9	96
Agriculture	78	12.4	66
Socioeconomic	21	3.4	18
Education	199	31.8	169
Health	216	34.5	184
Total	626	100.0	533

This, however, probably favors the educational field because it is more likely (and various reports indicate that this is the case) that the relative share of engineering technicians trained during the war increased in comparison to other fields of secondary specialized training. Therefore this distribution is of limited use only (it was not incorporated into table B–1).

Finally, in order to make estimates concerning the total size of the professional and semiprofessional labor force, data about graduating classes for postwar years (1946–50) will be used. These graduating classes in the postwar period (1945–50) were as follows:

[In thousands]

Year	*Graduating class from higher educational establishments*	*Graduating class from technicums*	*Total graduates*
1945	50	70	120
1946	49 [64]	191 [196]	240 [260]
1947	92 [120]	230 [235]	322 [355]
1948	122	252	374
1949	173	272	445
1950	173	327	500

The graduating classes include extension training graduates. The data are identical with those presented in the appendices to chapters III and IV. However, an adjustment of figures for graduates in 1946 and 1947 is necessary. The 1946–50 total *of technicum graduates officially reported* was *1,276,000*, but when the annual figures for this period are totaled, a figure of 1,272,000 is obtained. Extension training graduates were not reported in 1946 and 1947. Among technicum graduates there were apparently about 10,000. While higher education extension graduates were not reported for 1946 and 1947, there is a discrepancy of 43,000 between the total number of graduates (602,000) reported for 1946–50 and the total of annual figures on graduating classes. Therefore, arbitrary adjustments of graduating classes for these years (1946, 1947) were made, and they are given in the table above in brackets. Only limited use of these data will be made in the estimates below, and they were not included in table B–1.

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Soviet trained manpower. One procedure is via hypothetical constructs; the other, via the assumption of a uniform (3 percent) average annual attrition rate for the entire period (1937–50). The first method is more complicated and more revealing; the second, less refined and disregards the fact that prewar (1937–40) withdrawal from the professional and semiprofessional labor force was at the rate of almost 8 percent per annum, that hypothetical war losses were probably 8 percent of the 1940 base, that slightly lower than 2 percent average annual losses were in effect in the postwar period due to the influx of personnel previously (1937–40 or during the war) withdrawn from the civilian labor force. Keeping these complications in mind, let us proceed to estimate the size of the professional and semiprofessional labor force distributed by field.

TABLE C–9.—*Soviet professional labor force, by field, 1940*

[In thousands]

	(A)	(B)	(C)	(D)
Engineering	351.2	333.9	317.3	283.5
Agricultural	120.5	114.6	108.9	97.3
Socioeconomic	76.8	72.9	69.1	61.3
Educational	349.1	333.2	317.9	284.1
Health	149.9	142.7	136.1	121.6
Total	1,047.5	997.3	949.3	848.2

(A) Derived by method of straight addition of graduating classes to the assumed 1937 distribution of employed specialists.
(B) Derived by method of assumed 2 percent average annual attrition rate using 1937 as a base.
(C) Derived by the method of assumed 4 percent average annual losses using 1937 as a base.
(D) Derived by method of assumed 3 percent average annual losses using 1937 as a base and making a downward adjustment for prewar withdrawal (198,000) of professionals from civilian employment (i. e., draft, mobilization, etc.).

TABLE C–10.—*Soviet professional labor force, by field, 1950*

[In thousands]

	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Engineering	580.6	493.6	467.4	419.1	393.7	427.6	445.6
Agricultural	192.4	163.0	151.7	134.1	127.1	140.1	146.2
Socioeconomic	121.5	101.2	91.8	84.9	80.4	88.4	92.6
Educational	771.3	655.4	641.2	578.2	567.5	607.4	630.3
Health	331.0	274.2	263.6	236.4	227.7	249.1	254.7
Total	1,998.8	1,688.4	1,615.7	1,452.7	1,363.4	1,512.6	1,569.4

(A) Estimated by straight addition of graduating classes to 1937 base.
(B) Estimated by method of 2 percent average annual losses without any adjustment.
(C) Estimated by method of 2 percent average annual losses with assumed 8 percent hypothetical war losses.
(D) Estimated by method of 4 percent average annual losses without any adjustment.
(E) Estimated by method of 4 percent average annual losses with assumed 8 percent hypothetical war losses.
(F) Estimated by method of 3 percent average annual losses with assumed 8 percent hypothetical war losses and with downward adjustment for prewar (1937–40) excessive losses or withdrawals of professionals from civilian labor force.
(G) Estimated at 3 percent average annual losses without any adjustment for either hypothetical war losses or prewar withdrawals.

NOTES.—Out of the set of estimates presented above, the closest match to independently derived total of actually employed number of professionals (table A–6) is given by estimates (C), (F), and (G). None of these matches exactly, but a deviation of 5 to 7 percent between maximal and minimal estimates is a sufficient degree of accuracy when dealing with social statistics of this type.

It was decided to accept one of the minimal estimates (version (F)) as the most likely one (i. e., which takes account of average annual rate of attrition of 3 percent, makes allowance for hypothetical war losses of about 8 percent, and takes account of prewar excessive losses or withdrawals), and figures derived in such a way are regarded as representative of the true situation in 1950.

APPENDIX C–11.—*Checks upon estimates of the size of the Soviet professional labor force, by field, in 1940 and 1950*

The problem of independent checks upon these estimates must be considered in some detail. The estimates ascertaining the total size of the professional

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and semiprofessional labor force or total of either do not require any specific assumptions since there is no problem of definition of specialists on the basis of educational criteria. These checks, as far as totals are concerned, were made all along. Now the problem is of verifying the reliability of estimates for individual occupational fields on the basis of Soviet official pronouncements.

The first check consists of a comparison of official pronouncements concerning the employment of doctors and estimates derived for the health field segment. This procedure is as follows. It was stated that in 1951 (*Pravda*, April 17, 1951 (Itogi 1946–50)) the number of physicians employed in the national economy increased by 75 percent between 1940 and 1950. If we take the unadjusted 1940 estimate (136,000) and apply the percentage increase, we obtain 238,000 for 1950. If we take the adjusted-for-1937–40-excessive-losses figure (121,000), we obtain 213,000 for 1950. If, finally, we take the 1940 *actual* figure of the number of physicians employed given as 130,400 (*BSE–SSSR*, column 1178) and apply the percentage increase, we obtain 229,000 for 1950. The figures which were derived by estimates (on the basis of graduation trends) were in the neighborhood of 250,000, or some 20,000 in excess of the figure reconstructed on the basis of the independent official pronouncements.

Another source (Kosbelev, *Pod'yem . . .*, p. 40) reveals the 1940 to 1950 relationship of engineers employed. It states that during this period the total number of engineers employed in the national economy increased by 43 percent. Consequently, assuming the 1940 adjusted estimate (283,500), we obtain 433,700 for 1950. Assuming the unadjusted figure for 1940 (317,300), we obtain 453,700 for 1950. The figure derived on the basis of annual graduations for the same period is about 430,000. The difference is within reasonable limits of errors and uncertainties involved in estimating procedures based on rounded percentages and relying upon hypothetical constructs of one sort or another.

The same source (Kosbelev, *Pod'yem . . .*, p. 40) reveals the relationship between actually employed agricultural specialists in 1940 and 1950. The number of actually employed agricultural field professionals between these 2 years increased by 53 percent. Assuming the 1940 figure as 97,300, we obtain for 1950 148,800 agricultural field professionals, which is only slightly above our estimate on the basis of graduation trends (140,000).

All these checks reveal that the use of data concerning graduates from professional higher educational establishments can be employed for postwar period estimates of the occupational composition of the Soviet professional labor force and that the set of assumptions under which the estimates were made are substantially correct. The assumption of limited transfer from one occupation into another in particular seems to be valid.

Thus, to sum up, it appears that the composition of the Soviet professional labor force in 2 selected years (1940 and 1950) can be ascertained and verified with a sufficient degree of reliability (5 to 7 percent deviation, depending upon the assumptions employed in the estimating procedure). Consequently it was assumed that the occupational composition of the Soviet professional labor force in the 2 selected years was as follows:

Professionals with completed higher education by field	*In thousands*	
	1940	*1950*
Engineering	283.5	427.6
Agriculture	97.3	140.1
Socioeconomic	61.7	88.4
Education	284.1	607.4
Health	121.6	249.1
All fields	846.2	1,512.6

As was already observed, this 1950 total (1,512,600) differs slightly from that which was derived in table A–6 (1,573,000). In this connection it should be noted that the discrepancies observed are partly due to the exclusion of extension training students from distribution by field.

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TABLE C-12.—*Soviet professional labor force, by field, 1950–54*

[All figures in thousands]

	1950	1951	1952	1953	1954
Engineering	427.6	447.3	467.6	498.2	541.2
Agriculture	140.1	149.0	160.7	174.5	189.0
Socioeconomic	88.4	98.4	109.2	119.0	124.6
Education	607.4	674.5	748.3	803.3	857.2
Health	249.1	264.1	290.8	305.9	323.7
All fields	1,512.6	1,633.3	1,776.6	1,900.9	2,035.7
Total, adjusted to include extension graduates		1,680.0	1,864.0	2,027.0	2,218.0

Notes and checks

These estimates are derived by the method of assumed 2 percent average annual losses using 1950 as a base. The assumption is made that the 1950 distribution of professionals by field derived earlier (tables C–10, C–11) is essentially a correct estimate.

Prior to 1950, exclusion of extension students from totals does not lead to any appreciable error. After 1950, however, extension training graduates must be included. This is done by adding extension training graduates to the total derived on the basis of estimates for individual fields.

Further checks upon these estimates are essential. In the first place, as was already indicated (table A–7), the total size of the professional labor force can be checked. Assuming 1940 as 850,000, we obtain 1953 (220 percent increase between 1940 and 1953, *VVSh*, No. 10, 1954, p. 1) as 1,870,000, against the estimate made above of about 1,900,000 (excluding extension graduates).

The same source (*VVSh*, No. 10, 1954, p. 1) reveals that the number of engineers with completed higher education actually employed in the national economy increased by 80 percent between 1940 and 1953. Consequently, using the 1940 figure of 283,500, we obtain for 1953 the actual number of engineers employed in the national economy as 510,300, against the estimate made above of 498,200.

It was stated (Beriya speech at 19th CP Congress, [L. Gruliow, ed.] *Current Soviet Policies*, 1953, p. 164) that the number of physicians in the fall of 1952 was about 300,000, which differs from the figure above by some 10,000. However, it was also stated (*Partiinaya Zhizn'*, No. 10, 1954 [statement of Vice Minister of Health Kochergin]) that "nowadays" (one is not sure if this refers to 1952 or 1953, but 1952 seems more likely) there are 277,000 physicians and 19,200 dentists, which totals to 296,200, employed in the U. S. S. R.

TABLE C-13.—*Soviet semiprofessional labor force, by field, 1940*

	(A)	(B)	(C)	(D)
Engineering	484.3	459.8	436.4	413.5
Agriculture	223.5	213.2	203.5	191.7
Socioeconomic	206.1	194.8	183.9	174.9
Education	723.0	668.5	655.3	618.9
Health	428.8	412.2	396.2	370.6
Total	2,065.7	1,968.5	1,875.3	1,769.6

(A) Derived by the method of straight addition of graduating classes to the assumed 1927 distribution of employed specialists.

(B) Derived by method of assumed 2 percent average annual attrition rate, using 1927 as a base.

(C) Derived by the method of assumed 4 percent average annual losses, using 1927 as a base.

(D) Derived by the method of assumed 2 percent average annual losses, using 1927 as a base and making a downward adjustment for persons withdrawal (365,000) of semiprofessionals from civilian employment (i. e., draft, incarceration, etc.). It must be noted that, despite this adjustment, the total (1,769,600) is still about 70,000 above the estimated total semiprofessional labor force (tables A–6 and C–6). No adjustment was made to account for this difference, since such an adjustment would require further assumptions (i. e., another set of assumptions different from those used in estimates of the professional labor force), and this would complicate even further the estimating techniques adopted.

Furthermore, it is essential to bear in mind that annual graduation data for the war years for semiprofessionals are lacking, and therefore any estimates of the semiprofessional labor force by field for the postwar years lack the refinement and reliability of estimates for professionals (for further details, see notes to table C–14).

NOTE.—This table and the subsequent tables were incorporated into this appendix mainly for checking purposes, and the reliability of estimates of distribution of semiprofessionals by field is hampered by lack of information.

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TABLE C–14.—*Soviet semiprofessional labor force, by field, 1950*

	(A)	(B)	(C)	(D)
Engineering	917.3	834.3	795.7	749.4
Agriculture	482.5	423.9	406.9	385.4
Socioeconomic	422.1	364.8	369.2	349.3
Education	1,181.0	986.6	931.6	862.0
Health	873.8	747.2	714.2	672.6
Total	3,876.7	3,356.6	3,217.6	3,018.7

(A) Estimated by straight addition of graduating classes to 1937 base.
(B) Estimated by method of assumed 2 percent average annual losses without any adjustment.
(C) Estimated by method of assumed 2 percent average annual losses with assumed 8 percent hypothetical war losses.
(D) Estimated by method of assumed 2 percent average annual losses with assumed 8 percent hypothetical war losses and with downward adjustment for prewar (1937–40) excessive losses or withdrawals of semiprofessionals from the civilian labor force.

NOTES.—From the very onset it must be stressed that because of the lacunae of data in regard to annual graduations of semiprofessionals by field during the war, the estimate for 1950 was derived on the basis of a projection of prewar (1928–40) distribution of graduates by field upon graduations during the war years (see notes to table B–1 above). This procedure undoubtedly results in errors, the extent of which cannot be assessed in any meaningful way. As far as the total semiprofessional labor force is concerned, there is a close match of estimates of versions C and D with the total obtained above (tables A–6 and C–7). Although there is no way of checking these estimates for 1950, there is one check available for 1952, and therefore the estimates have been carried one step further in the next table.

TABLE C–15.—*Soviet semiprofessional labor force, by field, 1950–54*

	1950	*1951*	*1952*	*1953*	*1954*
Engineering	749.4	801.8	853.2	.....	.....
Agriculture	385.4	416.3	446.5	.....	.....
Socioeconomic	349.3	382.3	412.5	.....	.....
Education	862.0	904.8	944.7	.....	.....
Health	672.6	711.4	749.1	.....	.....
Total	3,018.7	3,196.6	3,406.0	3,638.0	3,885.0

NOTES.—These estimates were derived, because of gaps in data, by projecting the distribution of technicum graduates in 1946–50 upon graduates in 1951 and 1952. There is no other way of obtaining distribution of graduating classes by field.

It must be strongly emphasized that 1950–52 distributions of semiprofessionals by field were obtained on the basis of procedures (both for the war years and for the 1951–52 period) which assumed that a certain trend in graduations prevailed. This assumption was already questioned in earlier notes. The problem contains here, however, in trying to make some independent check.

As far as the total size of the semiprofessional labor force for 1952 is concerned, it appears that it is somewhat below the estimate in table A–7 above by some 100,000.

The only other check available is the statement that in 1952 the trained semiprofessional medical personnel consisted of 720,000 persons (*Partiinaya Zhizn'*, No. 13, 1954), which is close to the estimate presented in this table.

Though there is great uncertainty about these estimates, they are perhaps the best one can obtain considering the lacunae of data.

In conclusion, it must be noted that the semiprofessional labor force either experienced somewhat smaller losses during the war or postwar period, or that "upgrading" of semiprofessionals was again practiced (as in the early 1930's) on a large scale. The importance of the estimates lies in the fact that they give at least some idea of the probable distribution by field of trained semiprofessionals in the Soviet Union.